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CONTROL OF ACCIDENTAL POISONING—A PROGRESS REPORT

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ALMOST five years have elapsed since the first poison control center in the United States was established in the city of Chicago. During this period a number of developments have contributed to progress against accidental poisoning.

Probably the most noteworthy of these developments is the realization by the medical profession, especially by pediatricians, that accidents constitute a major health problem. This recognition is shown by activity in research, clinical medicine, and public health. Progress in treatment of accidental poisoning, morbidity data from poison control centers, and prevention aspects of the problem will be presented in this paper.

Accidents constitute a major health problem, and the prevention of accidental poisoning is an important phase of it. There are now, in the United States, 200 centers actively working on the prevention of deaths from this cause. Their functioning is illustrated by three case histories. A total of 3,926 cases of actual or potential poisoning have been reported to the National Clearinghouse for Poison Control Centers and are here analyzed. Ingestion of medicine accounted for 55% of these cases, the most frequently ingested medicine being acetylsalicylic acid. Data on 7,023 deaths due to accidental poisoning have also been analyzed by the U. S. National Office of Vital Statistics; they show that the importance of salicylate as a poison declines in the older age groups and that in the national experience barbiturates caused 50% of all accidental deaths from drugs. Research has led to the development of new drugs and new methods of treatment. Poison control centers supply up-to-date information on treatment and toxicity to physicians and are in a position to encourage education and research as part of the program of prevention. The private physician must play an important role not only in the treatment of accidental poisoning but also in its prevention.

Research in Treatment

Better understanding, recognition, and management of poisoning have followed the increasing research in recent years. We wish to mention a few findings pertinent to accidental poisoning.

Artificial Kidney and Exchange Transfusion.—The artificial kidney has been used with promising results for treatment of severe poisoning from salicylates, barbiturates, and glutethimide (Doriden), as well as intoxication from bromides and thiocyanates, and for treatment of acute renal failure from poisoning by nephrotoxic substances, such as carbon tetrachloride and mercuric chloride.[1] Experience with hemodialysis in some centers has been such that specific indications for this procedure have been proposed. The lack of experienced hemodialysis teams limits the wider use of this procedure for the treatment of acute poison-

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From the National Clearinghouse for Poison Control Centers, Accident Prevention Program, Public Health Service, U. S. Department of Health, Education, and Welfare.

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ings, especially for the management of children. More centers with personnel well trained in the use of the artificial kidney are developing, and we hope that this procedure will be applied more frequently to children and may be expanded to treat poisoning by many more toxic substances than those mentioned above.

Exchange transfusion also is being employed in the management of acute poisoning in children—especially in the treatment of severe salicylism.[2] The results seem promising, but more experience is needed for evaluation. In addition to salicylate intoxication, boric acid, isoniazid, sodium nitrite, and iron poisoning have been treated in this manner.

We would like to see further investigation with not only the artificial kidney and exchange transfusion but also intermittent peritoneal lavage[3] and the ion-exchange resin "kidney"[4] so that criteria for such therapy will become better established and factors for selecting the method of dialysis further defined.

Bemegride.—Continued search for antidotes has produced some drugs which must be mentioned. The controversy concerning the treatment of barbiturate intoxication—supportive and symptomatic treatment versus analeptic therapy—is well known. British workers have reported that bemegride (3-ethyl-3-methylglutarimide) has a seemingly direct antagonism to barbiturates,[5] but more recent studies have failed to confirm such action. The drug is apparently an analeptic with a high therapeutic index, the effects being more rapid in onset than those of picrotoxin.[6] British investigators now feel that the drug is safe and report clinical antagonism to not only barbiturates but also many nonbarbiturate hypnotics.[7] Schreiner and co-workers[8] have demonstrated functional antagonism of this drug to glutethimide clinically and recommend its use in moderate and severe glutethimide intoxication. Studies also have been carried out with bemegride incorporated into barbiturate capsules.

Whether or not this drug is as effective as its proponents believe, its introduction may have improved therapy of barbiturate poisoning by stimulating proponents of supportive and symptomatic management to action. Recent studies suggesting the superiority of supportive therapy, that is, support of depressed respiration and circulation, provision of maintenance fluids and electrolytes, and close observation and good nursing care, are impressive.[6]

Tranquilizer Intoxication.—The tranquilizers are in wide use today, and, as is to be expected with such a widely used group of drugs, the problem of poisoning from accidental or intentional overdosage has appeared. It now appears that large doses of chlorpromazine hydrochloride are capable of producing convulsions in certain individuals,[9] in addition to central nervous system depression. Methylphenidate (Ritalin) hydrochloride, a central nervous system stimulant, has been used in cases of coma caused by overdosage of chlorpromazine, meprobamate, or other tranquilizers.[10] Although we have reservations about using any central nervous system stimulant to treat intoxication by a drug capable of producing convulsions (such as chlorpromazine), further reports concerning the effectiveness of methylphenidate in treating acute tranquilizer-agent intoxication are to be awaited with interest.

Edathamil Calcium-Disodium.—The chelating agent, edathamil calcium-disodium, (Ca-EDTA) should be mentioned. To date this drug is the best agent against lead poisoning available, but its use has not significantly reduced mortality from lead poisoning in children.[11] A period of 48 to 72 hours of administration of this drug is usually required to reduce to less toxic levels potentially lethal concentrations of lead present in the tissues. It is in this period, after the onset of symptoms, that most deaths from acute lead encephalopathy occur.

It would appear that the incidence of neurological sequelae from lead poisoning may have been reduced by edathamil calcium-disodium therapy, but in children there is no substitute for prevention of exposure to lead and the early diagnosis of lead poisoning. Investigation for lead poisoning should be done in any child under the age of 5 years with a history of pica and present complaints of gastrointestinal symptoms, behavior change, or convulsions without a previous convulsive history.

Anticholinesterase Intoxication.—Possibly the most exciting work has taken place in the area of anticholinesterase intoxication. The anticholinesterase compounds are used as insecticides and in the treatment of myasthenia gravis. With the emergence of resistance to chlorinated hydrocarbon insecticides, the organophosphorus anticholinesterase compounds are being used with increasing frequency. Intoxication from improper use and from accidental ingestion has been reported. The development of quaternary ammonium anticholinesterase compounds with an intermediate duration of action has improved the treatment of myasthenia gravis, but again intoxication from these compounds occurs. Anticholinesterase poisoning produces muscarine-like, nicotine-like, and central nervous system effects. These occur from the accumulation of acetylcholine at postganglionic cholinergic nerve endings, at the myoneural junctions, and in the central nervous system.

Treatment includes maintaining a clear airway, artificial respiration because of paralysis of respiratory muscles, and atropine against the muscarine-like effects. Atropine has no effect on the muscular weakness or paralysis. It appears that a group of compounds known as oximes may reverse the neuromuscular block and the plasma and erythrocyte cholinesterase inhibition and decrease the generalized weakness seen in patients with anticholinesterase intoxication. The oximes do not seem to alter the muscarine-like effects.[12] Atropine plus an oxime compound (pyridine-2-aldoxime [PAM] or diacetyl monoxime [DAM]) may prove to be an effective combination and may diminish the need for or the duration of artificial respiration in the treatment of anticholinesterase poisoning. The oximes are still being investigated. Thus, they are not yet available for general use.

Research in Action of Poisons

We now turn from new possible antidotes to modes of action of particularly poisonous substances. Studies of hemolytic anemia resulting from poisoning by various agents have revealed erythrocyte enzymatic defects in "susceptible" individuals. The erythrocytes of those individuals who develop acute hemolysis subsequent to ingestion of naphthalene, ingestion of the fava bean or inhalation of pollen from the plant, or ingestion of primaquine phosphate have been found to have a deficit of glucose-6-phosphate dehydrogenase activity and a low level of glutathione.[13] Incubation of these erythrocytes with acetylphenylhydrazine results in a marked fall of reduced glutathione. Further studies show that the defect is genetically determined and probably transmitted by a sex-linked gene. This work explains the occurrence of acute hemolysis in only some of those individuals who have ingested naphthalene, the fava bean, or primaquine and may lead to a better understanding of other hemolytic anemias.

The recent development of a quantitative chemical analysis for the aromatic fraction of kerosene in venous blood [14] is important. It should give more information about the pathophysiology of kerosene poisoning and lead the way to a more effective and uniform therapeutic regimen for petroleum distillate ingestion.

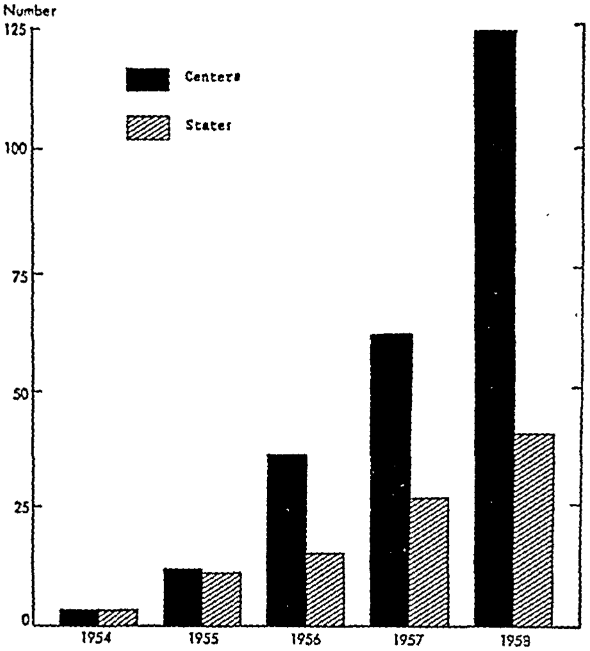
We have mentioned only a few of the more recent advances in the understanding and treatment of poisoning. It is gratifying that more work has been and is being carried out in this field. However, many problems remain unsolved. There is a need for the development of more inexpensive, less time-consuming analysis procedures for the detection of the more commonly involved poisonous substances. Certainly, more research into the pathophysiology produced by toxic substances is necessary so that rational and effective methods of therapy can be instituted.

Poison Control Centers

When, in 1953, the first poison control center was organized in the city of Chicago under the sponsorship of the Illinois chapter of the American Academy of Pediatrics, physicians, especially pediatricians, had long needed a central information agency where data on the toxicity, ingredients, and treatment of poisoning by potentially toxic trade-name products could be obtained. Cincinnati, Boston, Grand Rapids, Mich., and Washington, D. C., organized poison control centers thereafter.

The figure shows the growth of poison control centers in the United States. As of April, 1958, there were 128 poison control centers in 40 states and territories. There are now about 200 such centers operating in the United States.

These centers are active in the various phases of poison control. Information concerning the identity and toxicity of ingredients in trade-name products and other substances and current methods of treatment for various types of poisoning are available to physicians. If a nonmedical person calls for help, first-aid instructions are given, with advice to contact a physician. The centers receive an average of 18 calls per week. Most of the centers maintain 24-hour telephone service.



Growth of poison control centers, 1954 to 1958. Graph includes centers in all states, District of Columbia, Alaska, and Hawaii known to be in operation on April 1 of each year. Those centers once established but no longer in operation are not included.

Eighty-five per cent of the centers have facilities for treatment. The remaining centers furnish informational services only, but treatment is available at nearby cooperating hospitals. It should be remembered that poison control centers are not the only loci for emergency treatment of poisonings. Any well-equipped emergency room should be able to administer proper, indicated emergency treatment for poisoning.

Some poison control centers are carrying on studies in epidemiology,[15] treatment, and pharmacodynamics. Sixty-six per cent of the centers do nent by us. Accidental ingestion involving only the victim (usually a pre-school-aged child) accounted for 92% of all cases. Overdosage on the part of a physician or an individual other than the victim and misidentification of a substance (e. g., camphorated oil for castor oil) accounted for less than 5%. Intentional ingestion accounted for 5% of all cases.

Consideration of the time of day that ingestion occurred revealed 87% of all cases occurred between 7 a. m. and 8 p. m. Information on the time which elapsed between ingestion and lavage was available in 1,336 of 3,926 detailed case reports. In 54% of cases in which lavage was done, this treatment was instituted within one hour of ingestion. In only 3% of these cases a delay of longer than four hours occurred.

In about 2,500 cases information concerning the development of signs and symptoms of poisoning was available. Approximately 70% of the patients were reported as asymptomatic. Eight per cent of 2,400 for whom information on hospitalization was available were hospitalized for one or more days.

TABLE 5.—*Summary of Fatal Cases Reported by Poison Control Centers in Twenty-nine Areas**

Substance	Age	Sex	Race	Intent
Analgesic with salicylate........	27 mo.	F	W	Accident
Kerosene	13 mo.	M	N	Accident
Kerosene	16 mo.	M	W	Accident
Insecticide	14 mo.	M	W	Accident
Bichloride of mercury...........	42 yr.	F	W	Suicide
Natural gas	48 yr.	F	Unknown	Suicide
Unknown†	43 yr.	F	W	Suicide
Unknown†	Unknown	M	Unknown	Accident

* For various time periods from July, 1956, to April, 1958. Source: individual case reports submitted to the National Clearinghouse for Poison Control Centers.

† Evidence of poisoning on clinical basis only.

Follow-up Data.—Of the 3,926 detailed reports, 551 cases were further investigated by home follow-up. In 36.5% of these 551 cases, the offending agent was not in its original container before ingestion; the figure was significantly higher for petroleum distillates and pesticides. Bottles, cans, drinking glasses, and cooking utensils were containers different from the original in which some of these ingested substances were found.

In 68% of these cases, the substance was not found in its customary storage place. The ingested substance was found on a dresser or table in one-fourth of the cases and on the floor in 13% of cases. Moreover, the customary storage place for these substances was reported as an open shelf in 12% of the cases, a dresser or table top in 10%, and the floor in 6%.

In 216 cases (41%) the harmful or potentially harmful substance was found in the kitchen, in 113 (21%) in the bedroom, and in 66 (12%) in the bathroom.

Parents were supposedly supervising activity in 85% of the cases involving children. In 10% the supervising individual was an adult other than the parents. In only 5% of the cases the child's activity was supervised by other children or was unsupervised.

Comment

It is difficult to measure any success brought about by activities discussed in this paper in lowering the incidence of accidental poisoning. The data presented are definitely not national data, nor can they be extrapolated to arrive at national data. We are considering a selected group—those cases which came to the attention of local poison control centers in certain areas of the United States. Additional cases of accidental ingestion probably occurred in these areas but were not brought to the centers' attention.

The figures presented indicate that, as has been noted by Bain[18] and by others,[15] drugs, petroleum distillates, pesticides, and household preparations are the most commonly ingested products. Drugs accounted for one-half of all substances involved, with salicylates alone accounting for one-fourth of all ingested substances. These figures reflect the presence of medicaments, especially salicylates, in the home and their availability to children.

The differences between the distribution of drug ingestions treated by poison control centers and the distribution of drug ingestions reported as telephone calls to the centers for information is probably explained by the fact that physicians are familiar with salicylates and barbiturates and usually do not have to call for assistance in determining the nature and toxicity of these drugs. This is probably true for petroleum distillates also. However, the larger percentage of telephone inquiries for information about various household preparations and cosmetics (as shown in table 3) indicates the need for assistance in ascertaining the nature and toxicity of these substances. We suggest that the wide difference between cosmetic ingestions treated at the centers and those cases resulting only in calls for information is further a result of the generally lower toxicity of this group.

The data from poison control centers appear to support what others have pointed out: the hazard of accidental poisoning to pre-school-aged children who gain much knowledge by oral exploration of anything and everything.

It is interesting that the hospitalization rate was less than 10% within the group. For every fatal accidental poisoning, about 750 nonfatal accidental ingestions occurred in the reported group. This ratio differs from the often quoted 1:250 but is probably more accurate in the light of recent accident morbidity reporting.

The delay of more than one hour between ingestion and lavage in about 50% of the cases may indicate a lack of concern or understanding of the possibilities by parents. Many parents do not seek medical attention until obvious symptoms occur.

For instance, the latent period between ingestion and onset of symptoms in methyl salicylate poisoning emphasizes the danger in delay because the child does not immediately become ill.

We have noted with interest the recommendations on first-aid measures for poisoning adopted by the Committee on Toxicology of the American Medical Association. In view of the delay between ingestion and lavage in about one-half of cases, we suggest that parents be advised to contact a physician at once after a child's ingestion of a toxic or potentially toxic product. This advice should be modified according to the availability of medical care in the area.

The control of accidental poisoning must be effected by a dual approach—prevention plus improvement in all aspects of diagnosis and treatment. Improvement has been discussed in this paper in the sections on research and poison control centers.

The beneficial effects of drugs, soaps, detergents, bleach, pesticides, and petroleum distillates are not disputed. Prevention should be directed toward avoiding misuse of these substances. Proper storage in the home, with respect to container and location, should be emphasized in educational campaigns.

Educational campaigns must be directed predominantly to parents of pre-school-aged children. Modification of the environment of these children to achieve complete protection from toxic or potentially toxic substances is the practical end of such campaigns. Physicians have an important responsibility to educate parents in this manner. Examinations of the well child during infancy present an opportunity in which "safety vaccine" may be administered. These measures may be emphasized by writing prescriptions for small amounts of medication where feasible and by instructing the pharmacist to add to the label the words, "Keep out of the reach of children."

Other methods of prevention include organized educational campaigns on a community level, utilizing mass media and the spoken word. Such campaigns have been and are being carried out by local medical societies, health departments, poison control centers, and civic groups.

Industry has been quite concerned with the problem. As a result, work on the development of a safety closure for medicaments (and perhaps other types of products) is being done, mainly by the drug industry.

Precautionary labeling is another approach to the problem of prevention. Not only medical and public health workers are working in this field but also members of industry. Some states and cities have already adopted precautionary labeling laws.

The work of the Food and Drug Administration of the U. S. Department of Health, Education, and Welfare and the U. S. Department of Agriculture along the lines of prevention of misuse of drugs, caustics, and pesticides by enforcing proper labeling is another example of a type of prevention being undertaken.

In some universities consideration of the factors involved in accidental poisoning has been included in the undergraduate and graduate medical curriculum. Thus, future practitioners of medicine are becoming oriented to a common pediatric problem. We hope that, eventually, all medical schools will include the problem in their curriculums.

The controlling of accidental poisoning should not be looked on as an end in itself. The larger goal is accident prevention in general. The lessons being learned in dealing with accidental poisoning should be applied to other types of accidents. Burns, drowning, and foreign body aspiration are certainly three childhood accidents on which more attention should be focused. Already some poison control centers are extending their activities to include other types of accidents. This is the logical direction in which to proceed.

Summary

Work in public health and clinical medicine and research into pharmacodynamics of and pathophysiology produced by poisonous substances are increasing the effectiveness of treatment methods. As of April, 1958, there were 128 local poison control centers in 40 states; now there are about 200. These local centers aid physicians in the treatment of accidental poisoning by providing information about the nature and toxicity of ingested substances and the treatment of poisoning from these substances. Treatment facilities are usually available at these local centers also. All centers recognize the importance of prevention through education in dealing with accidental poisoning.

About 4,000 cases of accidental ingestion and poisoning were reported to the National Clearinghouse for Poison Control Centers from 29 poison control centers that are located in the eastern and midwestern parts of the United States. These reports, with figures on accidental poisoning deaths obtained from the National Office of Vital Statistics, show that drugs (which accounted for about 50% of all ingestions), household preparations, pesticides, and petroleum distillates were the most commonly ingested products. Pre-school-aged children were involved in 86% of cases reported from poison control centers and in 28% of accidental poisoning deaths reported by the National Office of Vital Statistics.

Five accidental deaths occurred in the poison control center series, giving a ratio of 1 fatal to 750 nonfatal accidental ingestions. Approximately 70% of the patients in about 2,500 cases in which information concerning the development of signs and symptoms of poisoning was available were reported as asymptomatic. Eight per cent of those in 2,400 cases in which information on hospitalization

was available were hospitalized for one or more days. In about 50% of patients on whom lavage was done, a delay of longer than one hour occurred between ingestion and lavage.

Follow-up data indicate that proper storage of potentially toxic substances must be emphasized in educational campaigns directed toward parents of pre-school-aged children. Such education must be directed from physicians to parents. Community educational campaigns by local medical societies, health departments, poison control centers, and civic groups should reinforce this important physician activity.

Other aspects of prevention include precautionary labeling and development of safety closures. Industry and the medical profession are active in these endeavors. The control of accidental poisoning is a means to an end—the control of all accidents.

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RESULTS OF TREATMENT IN VARIOUS CLINICAL SYNDROMES.—In the over-all clinic population and in the group of patients diagnosed as having psychoneurosis, the results of therapy by internists who place special emphasis on alleviating stress in the patient's life compare favorably with reports from other clinics where the treatment is carried out by trained psychiatrists. The data indicate that, in the hands of a sympathetic, sincere, informed and well trained physician, approximately two thirds of the patients will recover or show considerable improvement, and one third will show no improvement. . . . In certain disease entities—namely, peptic ulcer, ulcerative colitis and asthma—results of therapy by those who made protracted efforts to alleviate stress in the patient's life were better than they were in the hands of those who did not; as to peptic ulcer, the results were better than they were with those using psychoanalytic therapy. In addition, with these patients, frequently less time was required to be spent with the patient than when the physician concerned himself almost entirely with diet and medication. In the initial months of this type of treatment, more time is spent with the patient than in the more usual therapy. However, over a period of a year less time is often spent. It is possible that the one third of the patients showing no improvement represent the group of patients for whom there is no effective therapy at the present time. The findings show that internists, psychiatrists and psychoanalysts are all effective to the same extent in the treatment of psychoneurosis.—W. J. Grace, M.D., R. H. Pinsky, M.A., and H. G. Wolff, M.D., Results of Treatment in Various Clinical Syndromes, *Annals of Internal Medicine*, May, 1958.

MANAGEMENT OF ACUTE VENOUS THROMBOEMBOLISM

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The object of treating acute venous thromboembolism is twofold: (1) to avoid fatal pulmonary embolism and (2) to minimize postphlebitic sequelae. A hypercoagulability state appears to be the basic etiological factor; this may be aggravated by intimal damage and venous stasis. Anticoagulant therapy is the treatment of choice. In patients who have been operated on, the legs should be routinely inspected at least twice daily for asymptomatic swelling. Vigorous treatment with heparin and elevation tends to minimize postphlebitic sequelae.

At the present time thromboembolism has become one of the major hazards after surgical operations, trauma, or parturition. In about 3% of patients undergoing major surgical operations, an increased tendency to clot develops in excess of the needs of the organism to prevent bleeding secondary to the surgical trauma; the etiology of this hypercoagulability is unknown, and the result may be venous thrombosis and pulmonary embolism.

In the past eight years one of us (W. G. A.) has seen over 500 patients with venous thromboembolism on the surgical and obstetric services of this hospital. This experience has provided a rational basis for the management of patients with venous thromboembolism.

Etiology of Venous Thrombosis

Intimal damage, stasis, and hypercoagulability are commonly listed as the etiological factors in venous thrombosis. In our experience, intimal damage and stasis appear to play a relatively minor role in the development of deep venous thrombosis. Patients occasionally develop thrombosis of the deep venous system of the legs after the prolonged use of an intravenous catheter in the long saphenous vein. The usual sequence of events is that the intravenous solutions are sufficiently irritating to cause a superficial venous thrombosis which may then spread through the communicating veins to the deep venous system. The routine use of 10 mg. of heparin sodium in each liter of fluid administered by this route has been of definite benefit in minimizing superficial and deep venous thrombosis. The majority of surgical patients, however, do not require the prolonged use of an indwelling venous catheter. The intravenous administration of fluids in the lower extremities is avoided whenever possible, which eliminates a major cause of intimal damage.

The role of stasis in the production of venous thrombosis is also controversial. There are clear-cut instances where venous stasis is produced unintentionally with resultant deep venous thrombosis, such as the use of an elastic bandage on the thigh without a wrapping below the knee. Stasis due to immobilization and bed rest has been incriminated, although only approximately 3 out of every 100 surgical patients develop deep venous thrombosis. In addition, early ambulation has not lowered the incidence of postoperative venous thromboembolism.

Hypercoagulability is a nebulous phenomenon that has been recognized by surgeons and physiologists to occur after trauma or surgical operations.[1] No measure of hypercoagulability is available except by changes in whole blood clotting time; no specific blood clotting factor known today has ever been shown to be present in amounts in excess of normal in hypercoagulability.

ACTH and cortisone administered intravenously appear to cause a definite shortening in silicone tube clotting times, although the precise site of action is conjectural (fig. 1). It is our present concept that the period of hypercoagulability may be related to pituitary-adrenal hyperactivity after trauma or an operation and that the venous thrombosis is a localized manifestation of this generalized hypercoagulability state. The nidus for the thrombus may be formed at the height of the stress period, although the deep venous thrombosis may not manifest itself until several days later when the nidus has resulted in sufficient thrombus formation to occlude a long segment of vein and its collateral channels. Stasis and intimal damage, when present, would enhance the development of the nidus.

Site, Symptoms, and Findings in Deep Venous Thrombosis

Site.—Originally, deep venous thrombosis was considered to occur principally in the calf veins.[2] Recent anatomic studies[3] and clinical experience[4]

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suggest that the majority of deep venous thromboses involve the pelvic and iliac veins and that most pulmonary emboli originate in these larger vessels.

Our follow-up studies show that patients who originally had deep venous thrombosis of one leg only frequently displayed evidence of moderate postphlebitic venous insufficiency in the contralateral normal and uninvolved leg. This suggests that extensive venous thrombosis may be present without signs or symptoms.

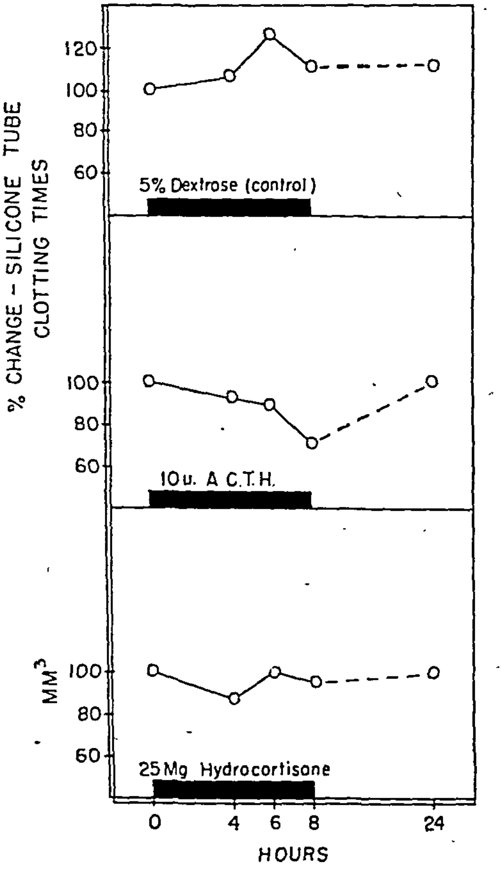

Fig. 1.—Effect of intravenously given ACTH and hydrocortisone on silicone tube clotting times, measured in percentage of change, in anesthetized dog; 5% dextrose in water was given intravenously to control animals.

Symptoms.—The signs and symptoms of deep venous thrombosis may be equivocal or quite definite depending on the severity of the process. Some patients may be asymptomatic, and others may complain only of pain along the course of the deep veins, without any objective findings. In such patients, the physician must rely on clinical experience as well as the intensity of the pain to decide whether a tentative diagnosis of deep venous thrombosis, warranting aggressive therapy, is justified. On the other hand, complaints of milder pain may lead the physician to careful observation of the patient for evidence of progressive deep venous thrombosis.

Objective Findings.—Signs which may be helpful in the diagnosis of deep venous thrombosis include (1) edema, varying from mild swelling at the ankle to massive swelling of the entire extremity; (2) distended pretibial and pedal veins, which in some cases may remain distended even with elevation of the foot above the level of the heart in the supine position; (3) presence of Homans' sign and positive findings on the Lowenberg test, which, however, may yield false-positive results in other inflammatory conditions of the structures in the calf of the leg; and (4) localized tenderness over the femoral vein in the groin, which is somewhat more specific than the Homans' sign, since fingerpoint pressure on other aspects of the thigh do not yield the same localized tenderness.

In patients who have been operated on, the legs should be routinely inspected at least twice daily for asymptomatic swelling. It has been of interest that in 12 paraplegic patients asymptomatic unilateral swelling of the leg (usually the left leg) was the only manifestation of deep venous thrombosis.

Pulmonary embolism without evidence of peripheral venous thrombosis occurred in 50% of 70 cases of embolism reported by us previously.[5] In some such cases the diagnosis of pulmonary embolism may be difficult to prove and to distinguish from other postoperative pulmonary complications; the physician will have to depend on his experience for the over-all evaluation of the patient prior to embarking on a regimen of therapy directed toward obviating further embolism.

Phlegmasia cerulea dolens, a manifestation of massive venous thrombosis with secondary arterial spasm, may be confused with primary acute arterial occlusion. This was noted in 19 of our patients and has been described in detail previously.[6] The following salient features should be noted in differentiating this syndrome from primary arterial occlusion: 1. The swollen limb. This indicates that the arterial inflow exceeds the venous outflow. Swelling does not occur in acute arterial occlusion.

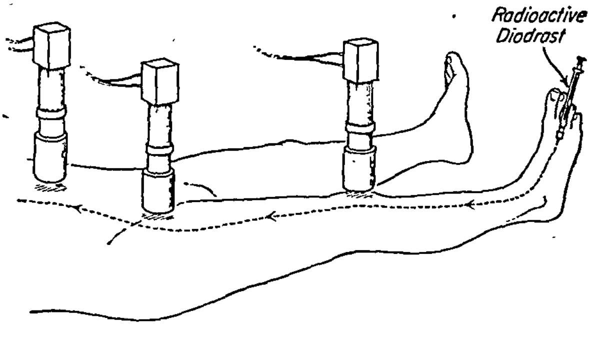

Fig. 2.—Arrangement of counters in patients undergoing venous outflow studies. Radioactive iodopyracet, 10-15 μc, is injected intravenously in the dorsalis pedis vein; radioactivity is measured at popliteal, saphenofemoral, and inferior vena cava stations.

2. Patchy blue discoloration of the skin. This is due to increased amounts of reduced hemoglobin in the extremity. In primary arterial occlusion the limb is generally white. 3. Prominent and distended superficial veins. With the massive venous thrombosis of the deep system, there is congestion of the venous circuit. In acute arterial occlusion the superficial veins are generally collapsed. 4. No definite sensory loss. There is no loss of sensation in the same segmental level as in primary arterial occlusion. Any sensory deficit is patchy and not of the "stocking-glove" type. 5. Presence of weak arterial pulses. The arteries in spasm may be faintly palpable all the way down to the pedal vessels, whereas in primary acute arterial occlusion the pulses are generally absent. 6. Dissociation between levels of coolness and lowest palpable pulse. Whereas in acute arterial occlusion there is a definite correlation between the lowest palpable pulse and the level of coolness, no such correlation is prevalent in arterial spasm complicating deep venous thrombosis. For example, the limb may be cool up to the groin in arteriolar spasm, and yet there may be a fairly good femoral pulsation. 7. An accessory consideration may be the absence of underlying heart disease as the etiological factor in the source of primary arterial embolus.

Laboratory Tests Aiding in Diagnosis of Venous Thrombosis.—Until recently, there were no laboratory tests to aid in the diagnosis of venous thromboembolism. Two possible approaches to this problem have been under investigation in our laboratory.

Isotope Outflow Studies: The isotope outflow test was described in a recent report.[7] Ten to 15 μc in 0.5 ml. of iodopyracet (Diodrast) tagged with radioactive iodine (I^{131}) is injected into the dorsalis pedis vein with simultaneously recording counters over the popliteal vein, the femoral vein, and the vena cava (fig. 2). The appearance time of the isotope and the shape of the curve of increase in radioactivity at each station is compared with the opposite leg and with normal controls. In deep venous occlusive disease a definite delay in the appearance of the isotope at each station occurs. Instead of a sharp wave of radioactivity, as noted in normal extremities (fig. 3), a slow jagged irregular rise in radioactivity develops (fig. 4). Unlike I^{131}-tagged serum albumin, I^{131}-tagged iodopyracet is excreted rapidly, and the small amount used (0.5 cc.) for each injection has been found free of any ill-effects.

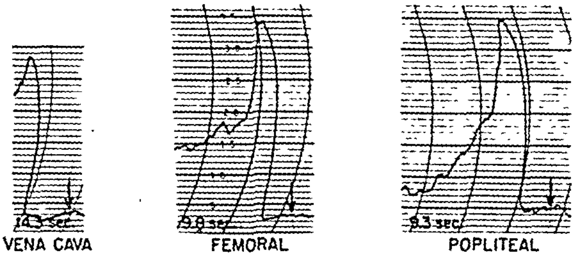

Fig. 3.—Venous outflow tracings in patient with lupus erythematosus and skin ulcers on right leg but normal deep venous system. Interval between injection and rise is short; rise is clear-cut, and return to base line is rapid.

Studies in 5-Hydroxyindoleacetic Acid Excretion: Platelets contain serotonin, and it is assumed that platelets break down during the process of thrombosis releasing their serotonin. The serotonin is excreted as 5-hydroxyindoleacetic acid (5-HIAA) (fig. 5). In 10 dogs massive intravenous thrombosis was produced by the intravenous injection of thrombin. The significant rise in urinary 5-HIAA, as depicted in figure 6, is in contrast to that observed in the control dogs, who received isotonic sodium chloride solution without thrombin and in whom no significant change in urinary 5-HIAA levels occurred. The urinary 5-HIAA levels of patients with thromboembolic disease is the subject of a study in progress at the present time.

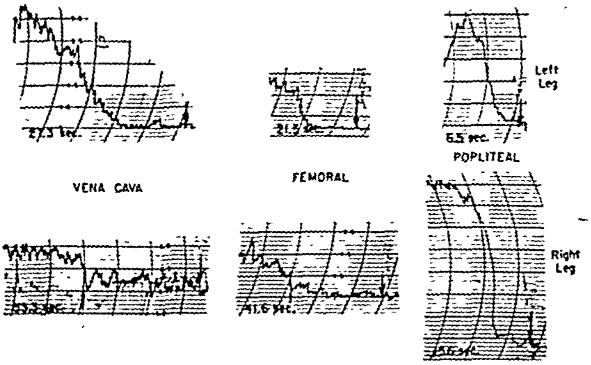

Fig. 4.—Delayed passage through postphlebitic deep venous system results in tracing with (1) prolonged interval between injection and rise, (2) irregular rise of curve, and (3) slow, irregular fall to normal.

Treatment

The object of treatment is twofold: (1) to avoid fatal pulmonary embolism and (2) to minimize postphlebitic sequalae. Patients with uncomplicated deep venous thrombosis without embolism are treated as follows: after base-line clotting time is obtained and a one-stage prothrombin test is done, the patient is started on heparin and coumarin drug therapy simultaneously. (After testing an array of coumarin drugs, we have returned to the use of bishydroxycoumarin [Dicumarol].) The heparin is administered as follows: 50-75 mg. of heparin given intravenously for an initial dose and 50 mg. of heparin given subcutaneously every four hours. The first subcutaneous dose is given at the same time as the intravenous dose. The clotting time is checked once a day thereafter at a time three and one-half hours after a given dose of heparin to ensure that the clotting time does not rise progressively to dangerous levels, as may occur after three or four days of heparin therapy. We prefer to have the clotting time (in the third tube of the Lee-White method) drop below 25 minutes at the three-and-one-half-hour checking point after the injection of heparin. If the clotting time at this point is above 25 minutes, the heparin dose should be reduced to 25 to 35 mg. every four to six hours.

It is also best to draw blood samples for the prothrombin test at the same time (three and one-half hours after the last dose of heparin) so as to minimize interference of the prothrombin test by the heparin. When the prothrombin level drops below 30% of normal, administration of heparin is discontinued and the patient is maintained on therapy with the coumarin drug for an average of eight days or until all swelling and symptoms of thrombosis have subsided and he is made ambulant.

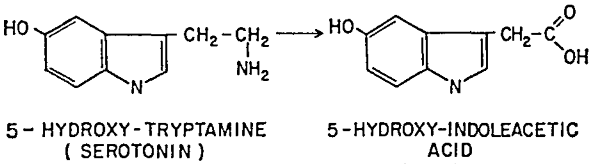
HO
CH2-CH2
NH2
N
HO
CH2-C
O
OH
N
5-HYDROXY-TRYPTAMINE (SEROTONIN)
5-HYDROXY-INDOLEACETIC ACID (5-HIAA)

Fig. 5.—Metabolism of serotonin, showing transition of blood serotonin to urinary 5-HIAA.

Special Routines.—Following are suggestions for special treatment when the case is complicated by pulmonary embolism, a potential bleeding source, prostatic surgery, or pregnancy.

Pulmonary Embolism: Using the above routine of anticoagulant therapy, we have had a 15% recurrence rate of pulmonary embolism after the discontinuance of heparin therapy. Therefore, we suggest that patients with pulmonary embolism should be maintained on heparin therapy exclusively for eight days. The coumarin therapy is started at that time, and the heparin therapy is discontinued when the prothrombin level drops below 30% of normal. The coumarin therapy is maintained from 6 to 12 weeks with the patient on an ambulatory basis.

Potential Bleeding Source: Patients with a potential bleeding source, such as a duodenal ulcer, are safer on heparin therapy only, since effects can be reversed rapidly with protamine sulfate in the event of hemorrhage.

Prostatic Surgery: Patients who develop venous thromboembolism after prostatic surgery constitute a special problem, and the management of these has recently been reported by Galleher and one of us.[8] The use of half the usual dosage of heparin is advocated if the urinary catheter has been removed and the urinary drainage is clear of blood. Coumarin drugs are avoided. If the indwelling catheter is still in place and the urine is still bloody, it is safer to consider vena caval ligation, as will be discussed below.

Pregnancy: During pregnancy venous thromboembolism creates a very special problem, as discussed in detail by Parker and associates.[9] During the antepartum period before impending labor and during the postpartum period, the same plan of anticoagulant treatment is used as for uncomplicated deep venous thrombosis. During the intrapartum period in the patient with venous thrombosis, it is safer to delay anticoagulant therapy until the immediate puerperium. If embolization should occur just before or during labor, heparin may be administered by the intravenous drip method: 150 mg. of heparin in 1,000 cc. of 5% dextrose in water at 25 drops per minute over a 12-hour period.

Indications for Vena Caval Ligation.—Vena caval ligation was carried out in 23 patients for the following indications: (1) recurrent embolism despite multiple prolonged courses of anticoagulant therapy and (2) active bleeding coexisting with the development of venous thromboembolism, e. g., from prostatectomy.

This lifesaving operation is the last barrier to the development of pulmonary embolism. It is of interest that 1 of our 23 patients had a small but definite embolus one week after the vena caval ligation. The sequelae appear to be proportional to the degree of deep venous occlusion existing before ligation. Recently, in seven patients undergoing vena caval ligation, the venous pressures were monitored in both legs throughout the operation and the first few hours postoperatively; there was no rise in venous pressure resulting from the actual ligation in four of the seven patients, presumably due to previous adaptation to thrombotic occlusion of the iliac veins bilaterally.

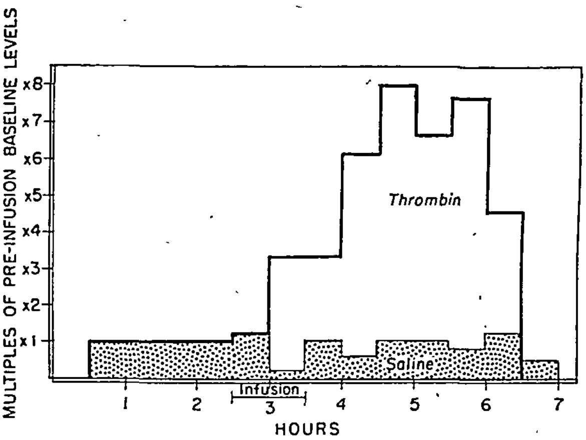

Fig. 6.—Urinary 5-HIAA excretion after intravenous infusion of thrombin and of isotonic sodium chloride solution in dogs.

Thrombectomy Combined with Anticoagulant Therapy.—We agree with Fontaine[10] and Mahorner and co-workers[11] that in massive venous thrombosis, particularly in younger individuals, thrombectomy should be considered through a venotomy in the common or superficial femoral veins. We prefer to start the heparin therapy preoperatively and to maintain this throughout the operation and the postoperative period. Only long-term follow-up studies of these selected patients will disclose whether thrombectomy combined with anticoagulant therapy is superior to anticoagulant therapy alone.

Femoral vein ligations have no place in the therapeutic armamentarium for venous thromboembolism. Unlike vena caval ligation, this procedure does not offer any safeguard from subsequent pulmonary embolism.[4] As described above, when anticoagulants are ineffective or contraindicated the site for venous ligation is the vena cava just below the renal vessels.

Prognosis

Of our 500 patients, 170 had primary acute deep venous thrombosis treated with anticoagulant drugs and followed for three or more years. We were able to evaluate 150 of the 170 patients for postphlebitic sequelae after intensive treatment with anticoagulant drugs during their acute phase. The results were as follows: no sequelae—leading normal life, 55.0%; wearing elastic supports full or part time, 19.0%; slight to moderate edema, 12.6%; dermatitis, 13.5%; incompetent superficial veins, 8.6%; and ulceration, 2.3%.

As mentioned above, it was of interest that in some patients postphlebitic sequelae were noted in the opposite normal limb that had appeared to be free of deep venous thrombosis at the time of initial treatment. Thus, in unilateral disease the uninvolved limb should be managed with equal concern.

In contrast to the 2.3% incidence of ulceration in our series, Bauer[12] reported a 20% five-year incidence in untreated patients. These results with anticoagulant therapy would support the opinion of de Takats[13] that vigorous treatment with heparin and elevation tend to minimize postphlebitic sequelae.

Summary and Conclusions

Venous thromboembolism remains one of the major hazards after surgical operations, trauma, or parturition. A hypercoagulability state appears to be the basic etiological factor; this may be aggravated by intimal damage and venous stasis. Symptomatology may vary from none to a combination of pain, swelling, venous distention, and pulmonary embolism. In the syndrome of arterial spasm complicating deep venous thrombosis (phlegmasia cerulea dolens), salient features differentiate it from primary acute arterial occlusion.

Two laboratory tests aiding in the diagnosis of venous thrombosis have been developed for use in patients with borderline symptomatology. The first is the isotope outflow study for the detection of venous stasis. The second is the detection of the serotonin breakdown product (5-hydroxyindoleacetic acid) in the urine in increased amounts in intravascular thrombosis.

Anticoagulant therapy is the treatment of choice. In pulmonary embolism an eight-day course of heparin therapy followed by several weeks of coumarin therapy is advised to obviate recurrent embolism. Vena caval ligation is indicated when coexistent bleeding exists or when there is recurrent embolism despite anticoagulant therapy. The use of thrombectomy combined with anticoagulant therapy in patients with massive venous thrombosis is still being evaluated.

Analysis of the long-term sequelae of patients who had primary acute deep venous thrombosis treated with anticoagulant drugs revealed no sequelae in 55.0% and ulceration in only 2.3%, as compared to other untreated patients in whom ulcerations were noted in 20%.

Figures 2, 3, and 4 were reproduced from *A. M. A. Archives of Surgery.*[7]

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SUPRACONDYLAR FRACTURES OF THE HUMERUS IN CHILDREN

COMPLICATIONS AND PROBLEMS ASSOCIATED WITH TRACTION TREATMENT

O. Sherwin Staples, M.D., Hanover, N. H.

The supracondylar fracture of the humerus is the most common and the most likely, when badly displaced, to be accompanied by vascular injury. For the more severe injuries, traction usually provides the best opportunity to observe the arm closely, control swelling, and gently effect reduction and fixation of the fracture, and it is preferable to elevation and delayed manipulation. With one exception, patients in this study treated by traction recovered normal or almost normal function without significant deformity. While traction treatment has an important place in management, there is no one single method which can be universally applied as treatment for the badly displaced supracondylar fracture of childhood. In these severe injuries, there must be careful selection of treatment and constant vigilance, no matter what type of treatment is used.

The fracture of the distal humerus with circulatory impairment of the arm remains one of the most difficult of the fracture problems of childhood. Of the various types encountered, the supracondylar fracture of the humerus is the most common and the most likely, when badly displaced, to be accompanied by vascular injury. At the Hitchcock Hospital in Hanover, N. H., for 10 years we ordinarily have used traction methods for displaced supracondylar fractures of the humerus in children if there is more than moderate swelling and if there is any impairment of arm circulation. Manipulative reduction and cast fixation has been reserved for patients with no severe swelling and in whom normal circulation is maintained when the fracture is reduced and held in a position of 120 degrees of elbow flexion. We agree with the advocates[1] of traction for the more severe injuries that this method usually provides the best opportunity to observe the arm closely, control swelling, and gently effect reduction and fixation of the fracture and that it is preferable to elevation and delayed manipulation as used by us in the past.

The type of traction ordinarily used at the Hitchcock Hospital is essentially that described by Smith[1a] in 1947 and Hammond[1b] in 1949 and attributed to Böhler and Zeno. The apparatus includes a small-caliber Kirshner wire placed transversely through the olecranon, threaded, to prevent side slip, to which is attached a weight by spreader, rope, and pulleys. The hand should be held over the face, as this position ordinarily matches the distal and proximal fragments in point of rotation. The forearm is suspended by a sling, preferably off the horizontal, to elevate the hand. Later, after the swelling is reduced, a horizontal traction sling may be added, if necessary, to correct anterior position of the proximal fragment. Occasionally gentle manipulation in traction is required. With smaller children, a binder pinned to the mattress is usually necessary to prevent overactivity in bed. The wire is removed and a cast is applied when there is early union of the fracture, usually after three weeks. Lateral traction, the other type commonly used for these injuries (originally described by Dunlop[1c]), was used by us on only one occasion.

In a period of 11 years (1946 through 1957) 86 children, aged 1 to 14 years, with supracondylar fractures of the humerus have been seen at the Hitchcock Hospital. Thirty-seven of these had little or no displacement and required only cast fixation. Of the others, 17 were treated by manipulation and splint fixation and 31 by traction with or without open operation. In the group of patients treated by traction, almost half came to us after manipulative treatment had been tried unsuccessfully elsewhere and often after one or more days' delay. One of these patients, arriving 48 hours after injury with severe vascular injury and with fracture blebs covering elbow and forearm, went on to develop contracture due to ischemia (Volkmann's contracture). With this one exception, patients treated by traction recovered normal or almost normal function without significant deformity, although a result study at the end of the growth period is not available.

Among the 31 patients treated by traction at the Hitchcock Hospital were 7 in whom traction alone was ineffective or in whom complications developed. For purposes of discussion these seven problem cases can be divided into four groups, not including the patient already mentioned who arrived late with irreversible soft tissue damage. In comparison with other reports of experiences with traction treat-

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ment for supracondylar fractures, the number is unusually large. Since this experience includes some problems and some errors not emphasized by others, a description of the complications that occurred might be of interest and value.

Complications

Distraction Resulting in Neurovascular Complications.—Two of the seven patients in whom problems were encountered exhibited distraction in the course of treatment resulting in neurovascular complications.

Case 1.—A 10-year-old boy was admitted to our hospital with an unreduced fracture seven days after injury. There was massive swelling of the arm. Fracture blebs covered the entire anterior surface of the elbow, and there was a complete radial nerve paralysis. The radial pulse was weakly palpable; the circulation of the hand was essentially normal.

Overhead traction of 8 lb. was applied, and all went well for two days. After 24 hours, roentgenograms (fig. 1) showed continued overriding of the fragments, but after 48 hours (fig. 2), and with no increase in weight, distraction was seen, and at this time the patient's pain, minimal before, became severe. The circulation of the hand was poor with loss of radial pulse. There was anesthesia of the hand, wrist, and forearm, and he was unable to move his fingers. At this point, and some three hours from the onset of any symptoms, traction was reduced to 3 lb. Three hours later the color and warmth of the hand improved to its previous status. Less than perfect position by x-ray was accepted, and the traction was maintained until early healing was obvious 17 days later. The anesthesia of the hand and forearm began to improve a few days after this neurovascular episode, and full recovery, including motor function, took place during eight months (fig. 3). Fifteen months after injury, except for a 5-degree loss of flexion, the arm was completely normal.

Case 2.—The second patient illustrating the same danger was a 4-year-old boy who had injured his elbow five hours before arrival. When he was first seen there was marked deformity, moderately severe swelling, a weak radial pulse, and normal circulation of the hand. Nerve function was intact. Overhead traction of 6 lb. was applied. Again, all went well during the first 24 hours, and, since check roentgenograms showed continued displacement, the traction was increased to 7 lb. Five hours later the patient complained of pain and, when examined soon afterward, was unable to extend his fingers actively. There was anesthesia of the hand, the radial pulse was not palpable, and the hand was cool and dusky. Traction was reduced to 6 lb. and on the next day to 4 lb. On the day after this episode, the radial pulse again became palpable, though it remained weaker than on the well side for a week. Traction treatment was continued for three weeks.

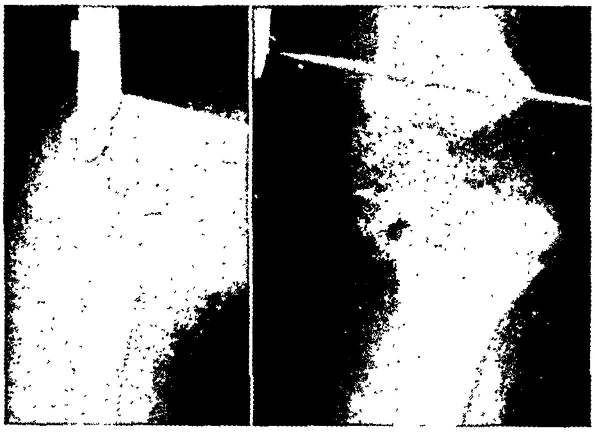

Fig. 1 (case 1).—Initial roentgenogram showing arm in traction, with overriding of fragments, after 24 hours.

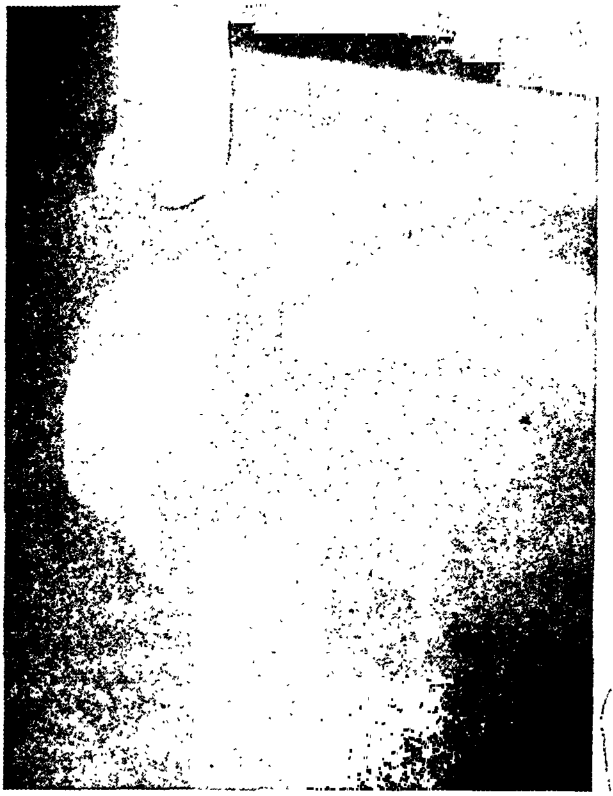

Fig. 2 (case 1).—Roentgenogram showing distraction present after arm had been 48 hours in traction.

Sensory and motor function began to return some three weeks after the injury and was almost normal in seven months. Ten months after injury there was full motion of the extremity, and except for slight coolness of the affected hand and slight intrinsic hand weakness a completely normal upper extremity was found.

Whether these complications represent ischemic neuropathy or a combination of nerve and vessel injury does not seem to be of as much importance as the fact that they occurred during traction treatment and should be avoided. Distraction is an obvious fault but one which we did not avoid on these two occasions, even though the amount of weight used did not, at the time, seem excessive. These experiences make us feel strongly that, first, prompt reduction in 24 or 48 hours should not be the rule; second, initially enough weight should be used only to suspend the arm; and, third, any complaint of increasing elbow pain should receive prompt attention. We now seldom use more than 4 lb. at first. This is somewhat at variance with other reports which do not stress this matter, but we do eel that one should start with a small weight and, uided by the status of swelling and circulation, ncrease the weight slowly and gradually during everal days regardless of the duration of the fracure. As shown in these two patients, a minor degree of overriding is consistent with a good result rovided reasonably good alignment is present.

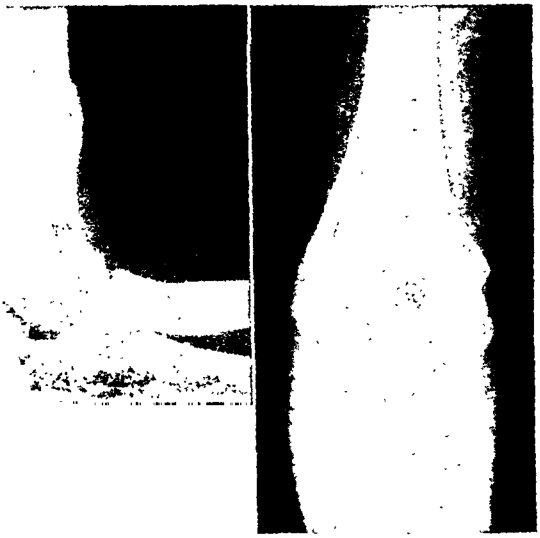

Fig. 3 (case 1).—Roentgenogram taken six months after injury to arm.

Displacement of Brachial Artery Preventing Traction Treatment.—Occasionally the injury may be such as to displace the brachial artery so that traction treatment alone cannot be safely used. Such patients, of whom we had two, should be recognized and treated promptly.

Case 3.—A 5-year-old boy arrived untreated two hours after injury. The elbow was markedly swollen and held in 30 degrees of flexion. The radial pulse and skin circulation were normal. There was no nerve involvement. After the anesthetic had been given we were surprised to find that flexion of the fractured elbow (fig. 4) to 45 degrees or even long axis traction of the extremity produced obliteration of the radial pulse and complete loss of circulation to the hand. Happily, by restoring the arm to its original position, the circulation soon became normal.

Exploration of the brachial artery was carried out immediately through a longitudinal incision, S-shaped to diminish scar contracture. The artery was found to have slipped behind the median epicondyle so that it actually ran between the two fragments of the humerus (fig. 5). The artery, undamaged, was restored to its proper location. The fracture was reduced by manipulation, and the skin only was closed, leaving the fascia open. The arm was fixed first in a cast and later by overhead traction. Uneventful recovery followed, and on examination four years later there was full function and no deformity.

Case 4.—A 4-year-old girl entered the hospital with a widely displaced supracondylar fracture three hours after injury. There was marked swelling, a palpable radial pulse, and normal hand circulation. There was no obvious nerve damage. With the patient under anesthesia it was found that elbow flexion to 50 degrees produced immediate loss of both radial pulse and of circulation in the hand. After two attempts the position of overhead traction could be maintained without loss of pulse or of circulation to the hand. This was maintained by 5 lb. of Kirshner wire overhead traction. The swelling decreased, and, because of persistent displacement and overriding of the fracture, the weight was increased to 7 lb on the afternoon of the fifth day.

Although during the night routine three-hour checks by the nursing staff revealed no change, it was noted in the morning that the elbow was painful, the radial pulse was no longer palpable, and the hand was cool, with loss of sensory and motor power in the hand. The traction was reduced to 3 lb., and in a few hours the circulation again became normal. During 24 hours there was partial recovery of sensory and motor function.

Exploration of the brachial artery and median nerve was carried out two days later. Acute angulation of these structures over the distal tip of the proximal humeral fragment was found. The artery and nerve were freed, the fracture reduced, and a cast applied. The position was held and no further complications ensued. Thirteen months after injury, except for 5-degrees' loss of hyperextension, there was full motion, no deformity, and normal nerve and blood vessel function. In retrospect, it appears that this patient could have been better treated if the plan followed with the patient in case 3 had been used.

Persistent Angular Deformity Not Correctible by Traction or Manipulation.—There is general agreement that, although less than perfect position in the lateral roentgenograms can be accepted in the supracondylar fracture of childhood, yet any serious degree of rotatory or angular deformity, particularly in the frontal plane, must be corrected.[2] Open operation and internal cross wire fixation was necessary for one of our patients after failure of traction and manipulation to correct the deformity. At operation a small displaced central fragment was found to be the cause of the persistent deformity. Ten months after operation, except for a 10-degree loss of elbow flexion, the arm was normal. This is not an easy way to treat these fractures and, in our opinion, should be reserved for only those patients in whom traction and manipulation have failed.[3]

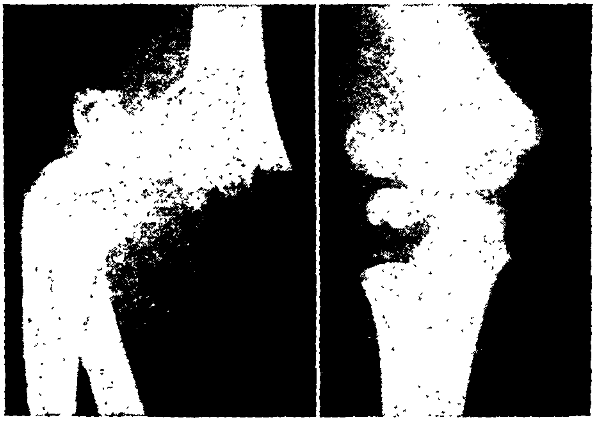

Fig. 4 (case 3).—Initial roentgenogram showing fracture of elbow.

Incipient Ischemic (Volkmann's) Paralysis.—We agree with Blount[4] that the absence of a radial pulse is not an indication for operation if the skin circulation of the hand is normal. We also agree that with inadequate arm and hand circulation, if prompt improvement does not follow simple measures such as gentle traction or procaine hydrochloride (Novocain) blocks of the stellate ganglion, exploration of the artery is required immediately. Although sometimes resection of a segment of the brachial artery is indicated because of persistent spasm or thrombosis,[5] such treatment was not required in any patient in our series.

We have had two patients with inadequate arm circulation due to marked brachial artery spasm. These patients, seen early and failing to respond to simpler measures, were treated successfully by exploration, fasciotomy, release of hematoma, and traction for reduction and fixation.

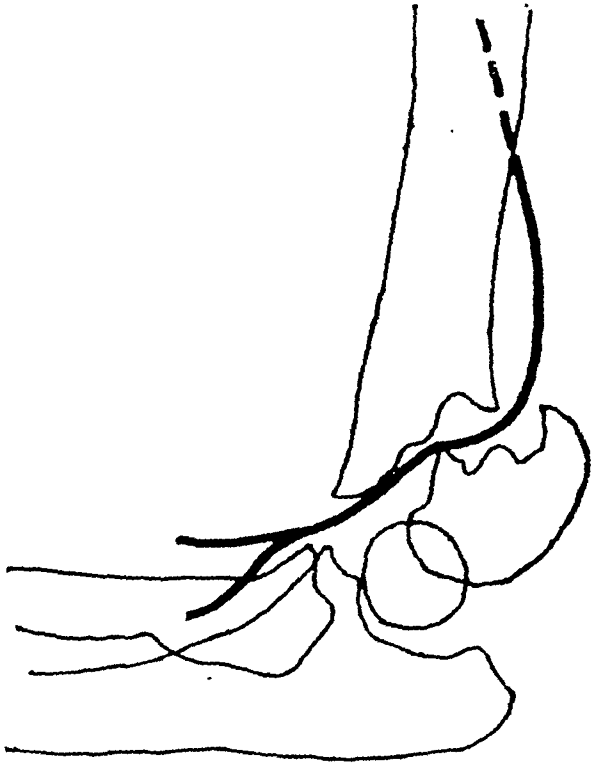

Fig. 5 (case 3).—Diagram showing operative finding of artery behind median epicondyle and between two fragments of humerus.

Case 5.—One of these two patients, a 5-year-old boy, had an interesting problem (fig. 6) in the postoperative period. After an operation for the relief of circulatory impairment, the patient was fixed in a cast in which the fracture slipped. After two days a Kirshner wire was inserted and the arm put in the overhead position. The radial pulse immediately disappeared, regardless of the amount of traction used. When the arm was held horizontal at the side with the elbow in 30 degrees flexion, the radial pulse again became palpable. We believe that this behavior was due to the fact that the distal end of the proximal humeral fragment had been widely stripped of soft tissue by injury and in the overhead position sagged anteriorly, producing brachial artery spasm. A modified Dunlop type traction was used, with a 3-lb. pull applied by Kirshner wire to the abducted, horizontal arm and with the forearm suspended in 35 degrees of elbow flexion by a 1-lb. adhesive traction (fig. 7). The further course was uneventful.

After considering the course of this last patient, one might infer that the Dunlop type traction is preferable. Our limited experience with this type of traction allows us to draw no conclusions. No matter which type of traction is used, it is clearly dangerous to assume a carefree attitude. Distraction undoubtedly is dangerous whether the arm is horizontal or vertical, and, if there is critical displacement of the brachial artery or persistent inadequate arm circulation, neither type would be safe.

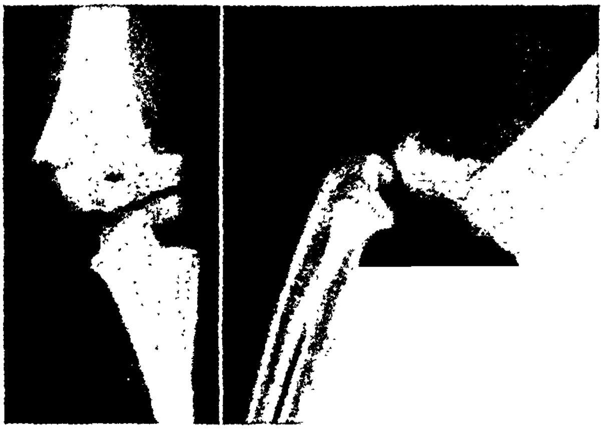

Fig. 6 (case 5).—Initial roentgenogram showing fracture of elbow.

Conclusions

No single method can be used as treatment for the badly displaced supracondylar fracture of childhood. Exemplified by our experience, there must be careful selection of treatment and constant vigilance, no matter what type of treatment is used. In spite of our problems we still feel that traction treatment has an important place in the management of these severe injuries.

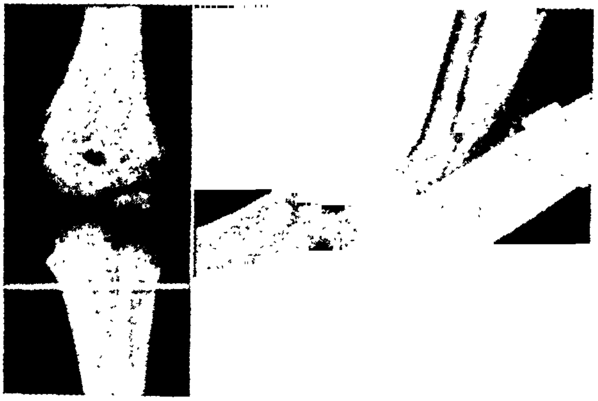

Fig. 7 (case 7).—Roentgenogram taken after application of horizontal traction.

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REGIONAL ANESTHESIA—A REAPPRAISAL

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It is the purpose of this presentation to indicate the present status of regional anesthesia, to recount some of the recent developments and trends in this field, and to suggest its proper role in surgical, obstetric, and medical practice in the light of current concepts in anesthesiology. Although the discussion would seem hardly worthwhile in an era when the "magic mixtures" of muscle relaxants, intravenous barbiturates, and gaseous anesthetics dominate the scene in American anesthesiology, I believe it is a timely topic for reasons which will become apparent. A reevaluation of the method is particularly important in view of present trends in anesthesiology and the differences of opinion among anesthesiologists regarding regional anesthesia. It is especially important for surgeons, obstetricians, and other physicians who are not anesthesiologists to realize and appreciate the limitations, indications, advantages, and disadvantages of this method of anesthesia.

Recent Developments

During the past two decades many significant changes have been made in anesthesiology, both in concept and in clinical practice.[1] These changes have been due not only to the ever-changing patterns characteristic of medicine as a whole but to certain factors peculiar to anesthesiology itself. Of these the most important by far is the increase in the number of physicians who have entered this specialty since World War II, which demonstrated emphatically the need for trained anesthesiologists and precipitated the interest in this field.

The anesthesiologist should be equally skilled in all anesthetic methods, both general and regional. Regional anesthesia is remarkably flexible in application. Regional blocks of the extremities do not upset the systemic water-electrolyte balance, the blood chemistry, or the functions of kidney, liver, and heart. When used in situations to which it is adapted it causes the least possible disturbance of bodily functions. It affords complete muscular relaxation which is limited to the part involved. While balanced general anesthesia is superior to regional techniques in major operations on the head, neck, thorax, and upper abdominal cavity, regional anesthesia is particularly useful in operations on the lower abdomen, back, extremities, and superficial parts of the body and in obstetrics. It is assumed that the surgeon is experienced, skillful, and gentle and that he observes the basic principles of good surgical technique. To assure the patient of the best anesthetic care, both regional and general anesthetics must be available to the anesthesiologist, and he should be free to choose on the basis of their respective indications and limitations.

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The recent progress in surgery has further emphasized the urgent need for commensurate improvements in anesthetic care. The advent of ultraradical surgical invasion of certain organs, which before had been considered forbidden, prompted anesthesiologists to hazard procedures notable for the liberties taken with vital processes. These physiological trespasses, which concern total muscular paralysis, marked reduction of blood pressure and temperature, and asystole, are now considered to be justifiable risks which may be taken in order to make certain operations possible.

All these factors have prompted greater scientific activity, understanding, and achievement in this relatively new field. The trial and error methods have been replaced by well-directed laboratory and clinical research into respiratory, cardiovascular, and other physiological functions. There has ensued a remarkable augmentation of knowledge of the alterations anesthesia produces in them and of ways and means to minimize the effects. This knowledge, in turn, has prompted revisions of numerous concepts of anesthetic management and has resulted in the development of many new agents, techniques, and methods.

One of the outstanding developments, and the one which next to the advent of the anesthesiologist is the most significant, is the full appreciation by most seriously thinking surgeons, obstetricians, and anesthesiologists of the concept that the administrator is far more important than the drug, technique, or method being employed. Critical evaluation of various methods has reemphasized that in the hands of the skilled physician any method may be employed to the advantage of the patient. Differences in indications, advantages, disadvantages, and complications of various techniques have become significantly less important than before.

All of these factors have had a profound effect on the practice of regional anesthesia, and they indicate an obvious need for reassessment of the method in order to place it in proper perspective. The following opinions are based on experience gained by personal administration, supervision, and teaching of all methods of anesthesia during the past 15 years and by recent observations of practices carried out in many medical centers in the United States and abroad.

Current Trends in Regional Anesthesia

In recent years there has been a marked decrease in the use of regional anesthesia, particularly in surgery.[1] There are several reasons, but foremost is the high standard obtained in general anesthesia, making it more suitable for poor-risk patients. Formerly, if a trained anesthesiologist was not available, poor-risk patients were operated on under regional anesthesia administered by the surgeon, with untrained personnel or an anesthetist technician in attendance; now, in these circumstances, general anesthesia is administered.

In the excitement of knowing about and of taking part in the many developments in balanced anesthesia, anesthesiologists have neglected the regional technique. Teachers have justifiably emphasized the great importance of general anesthesia, but in doing so they have slighted regional techniques. As a result, many physicians have finished their training in anesthesiology with little or no experience with this method. In their practice they feel uncertain about it, and rather than risk a failure they use general anesthesia instead. This is unfortunate, indeed, because the well-trained anesthesiologist should be able to administer all forms of anesthesia equally well.

Drugs.—Despite these trends, there have been a number of new developments in regional anesthesia. One of the most significant of these has been the adoption of standardized methods of clinically evaluating local anesthetic drugs.[2] This development has been prompted by the realization that, while laboratory experimentation in animals is an essential prerequisite for development of a drug, the data obtained by such experiments can only be used as a crude yardstick and must be substantiated in clinical trials on human beings. This is particularly applicable to local anesthetic agents, since these are administered by several routes and by numerous techniques, which variations are accompanied by variations in therapeutic or toxic effects. The procedures now adopted include, among others, proper statistical design and standardization of the study prior to initiation of the clinical trial, the use of a standard of reference (procaine), and the use of unknowns (the "blind" technique). The essential characteristics of local anesthetic drugs which require clinical evaluation include potency, latency or the time of induction, penetrance and extension, duration, and toxicity. These characteristics must be studied with each of the regional anesthetic procedures carried out under standardized conditions.

Clinical evaluation under these conditions has revealed that the newer drugs, lidocaine (Xylocaine) hydrochloride, chloroprocaine (Nesacaine) hydrochloride, hexylcaine (Cyclaine) hydrochloride, and propoxycaine (Blockain) hydrochloride have certain advantages over procaine which warrant their clinical use.[3] Chloroprocaine is the most rapid-acting agent; lidocaine and hexylcaine are almost as rapid. Procaine, piperocaine (Metycaine) hydrochloride, and parethoxycaine (Intracaine) hydrochloride may be considered to have action of intermediate rapidity, and tetracaine (Pontocaine) hydrochloride and dibucaine (Nupercaine) hydrochloride are slow-acting. Concerning penetrance or ability to spread by penetrating fascial and other tissue barriers, lidocaine is the most effective, with chloroprocaine and hexylcaine second; procaine, tetracaine, piperocaine, parethoxycaine, and dibucaine have fair to poor penetrance. Concerning duration of action, procaine, chloroprocaine, and piperocaine may be considered as drugs of short duration (approximately one hour), parethoxycaine, hexylcaine, and lidocaine as drugs of intermediate duration (one and one-half to two hours), and tetracaine and dibucaine drugs of long duration (over two hours).

Another important development is the realization that in order to evaluate a local anesthetic drug it is necessary to consider the "corrected toxicity ratio" and not the absolute toxicity. In other words, if a certain drug is 10 times as toxic as the standard drug procaine (of which the relative toxicity ratio is 10) but can be employed in one-twentieth the dose of the standard drug (of which the relative potency ratio is 20) with equal effectiveness, then its toxicity is actually one-half that of the standard drug and the corrected toxicity ratio is 0.5 and the anesthetic index 2. Extensive clinical evaluation of various local anesthetic drugs with procaine does not bear out the often quoted statement that procaine is the least toxic of all anesthetic agents.[4] This misconception, which is based on animal experimentation in which toxicity was evaluated by one form of injection (usually the intravenous route) and potency by another (subcutaneous) has misled many clinicians into believing that procaine is innocuous. A number of other drugs, but particularly tetracaine and chloroprocaine, when employed in equal concentrations, produce significantly less incidence of toxic reactions than does procaine.[5] At the same time chloroprocaine affords the advantage of producing an analgesia which is much more rapid and tetracaine that of anesthesia of longer duration.

It is obvious that each of the local anesthetic drugs presently available for clinical use has desirable properties which may indicate it for a specific circumstance. It needs to be emphasized that there is no local anesthetic agent which is so superior to all the others as to warrant its exclusive use. Moreover, it is necessary that the clinician know the characteristic of each drug in order for him to be able to select the optimal drug in each circumstance. Thus, if it is desirable to have a drug with low toxicity, rapid onset, and short duration, chloroprocaine is the anesthetic of choice. If rapidity of onset is not important, tetracaine or dibucaine are by far the best agents. When properly employed (optimal concentration and optimal volume) tetracaine and dibucaine are no more toxic than most other local anesthetic drugs. The validity of this statement is obvious when one considers that tetracaine and dibucaine have been used for saddle block and other techniques or subarachnoid (spinal) block in millions of cases without significant neurological or other sequelae.

There has been a trend to abandon the use of hyaluronidase for enhancement of the spread of local anesthetic solution because results have been disappointing. Although this agent does hasten the onset of infiltration, topical, and extradural anesthesia, it does not so consistently increase the number of successful regional nerve blocks as had been hoped, and at the same time it markedly increases absorption with a consequent shortening of the duration of anesthesia and an increase of toxic reactions.

The use of Efocaine (an anesthetic mixture, with 1% procaine, 0.25% procaine hydrochloride, and 5% butyl-*p*-aminobenzoate in solution) has been abandoned in most clinics because of the serious neurological complications which have occurred after its injections. Oil solutions, long claimed to produce prolonged block, have been abandoned because of poor results and high incidence of inflammatory reaction, separation, and necrosis. Phenol and alcohol have been employed as neurolytic agents successfully to produce prolonged interruption, but their use is not without risk since it is frequently followed by neuralgic pain and other manifestations of chemical neuropathy.[4]

Techniques.—Since the advent of muscle relaxants, the use of spinal anesthesia, which formerly enjoyed an eminent status for surgery performed below the diaphragm, has declined considerably. A number of factors have been responsible for this decline: the surgeon no longer administers spinal anesthesia in the absence of trained personnel, and certain misconceptions concerning serious neurological sequelae have arisen. Since this method has been covered by another speaker, I will do no more than emphasize that when properly employed it constitutes one of the most practical and safest forms of anesthesia. Notwithstanding the misleading reports of (poorly conducted) clinical surveys which tend to show that the incidence of serious neurological complications is still frighteningly high, its safety has been definitely demonstrated by well-controlled studies.[5] These studies have revealed that complications attributable to the anesthesia were extremely rare after spinal anesthesia and that the mortality was significantly lower than that recorded after general anesthesia. The use of needles of smaller diameters and better drugs, the widespread adoption of dry heat and autoclaving to sterilize the spinal anesthetic agents, and general improvement in techniques have lowered the incidence of complications almost to a minimum. The safety of spinal anesthesia is further attested by its widespread adoption for the provision of relief of pain of childbirth in many millions of mothers without significant incidence of serious complications.[5d]

In the past several years there has been an increase in the use of spinal epidural blocks in America, probably as a result of the aforementioned unjustified resentment against spinal anesthesia and the desire of some physicians to find a suitable substitute for it. Since in this technique the dura is not punctured and the solutions are not injected directly into the subarachnoid space, headaches and cranial nerve palsies do not occur and the hazards of neurological sequelae theoretically do not exist. Moreover, in some instances a limited segmental block of the lower thoracic and lumbar regions suffices, so that the undesirable cardiovascular and respiratory effects are less and postanesthetic dysfunction of the bladder, rectum, and lower extremity is avoided.[6]

Since epidural block requires only one puncture, it has significant advantages over multiple intercostal, paravertebral, and peripheral nerve blocks. It is also preferred to extensive local infiltration or field blocks because it provides more complete analgesia and muscular relaxation and requires less anesthetic drug, does not distort tissues, and does not interfere with the postoperative repair. The potency, penetrance, and rapid action of chloroprocaine, lidocaine, and hexylcaine have minimized such disadvantages of extradural block as slow onset and inadequate relaxation, and their use has therefore become widespread. The feasibility of placing an indwelling catheter into the extradural space has further extended the clinical utility of this technique and has augmented its superiority over other regional techniques which require multiple punctures. The continuous technique not only affords much better control of duration, intensity, and extent of block but permits the continuation of analgesia into the postoperative period for relief of severe pain. The fact that the catheter does not come into contact with nerve elements and that the danger of exposing them to the constant irritation of a foreign body is eliminated constitutes a significant advantage of this technique over that of continuous spinal anesthesia.

On the other hand, epidural block is more difficult to carry out, and there is consequently a greater incidence of failure than with spinal anesthesia. Notwithstanding these disadvantages, it can be stated that epidural block in certain circumstances where a segmental block is adequate, such as chordotomy or inguinal and femoral herniorrhaphy, offers advantages to the patient and surgeon. Peridural analgesia is also useful in the control of the pain of the first stage of labor and in the provision of anesthesia for vaginal or abdominal delivery. But the greatest use of this technique is as a diagnostic-therapeutic tool in the management of various medical disorders.[6]

The use of single-dose and "continuous" caudal anesthesia in obstetrics has steadily increased, while for surgery it has decreased. The trend in surgery is due to the increasing use of general anesthesia and spinal epidural block.

Peripheral nerve blocks, including block of the brachial plexus, sciatic, and femoral nerves, have been used less, as have all other regional techniques, since the advent of muscle relaxants and intravenously given barbiturates. However, the decrease has not been as great as with some other techniques, because the value of regional anesthesia for the surgery of extremities is recognized.

Paravertebral blocks, which were formerly used in combination with light general anesthesia in poor-risk patients undergoing neck, thoracic, or abdominal surgery, have been almost completely abandoned. This has been due to improvement in general anesthesia, more frequent use of segmental epidural block, and a greater appreciation of the complications (hypotension and pneumothorax) and hazards (total spinal anesthesia) inherent in paravertebral blocks, especially in the thoracic region. The high incidence of these complications has also discouraged the use of this technique as a diagnostic and therapeutic procedure.

The advantages of field block or local infiltration for minor surgery are still appreciated and account for the widespread use of these techniques in general practice. Cranial nerve blocks for surgery were never very popular, and at the present time they are rarely performed, except in unusual circumstances.

There have been very few changes in the clinical use of topical anesthesia, which continues to be widespread for various endoscopic procedures and operations on the mucous membranes in the body. A number of new topical anesthetic agents have been employed extensively because of specific advantages. These include lidocaine and hexylcaine, which have a rapid and profound action.

Applications of Regional Anesthesia—Reappraisal

In considering the clinical application of any method of anesthesia and evaluating its proper role, it is essential to remember certain premises and precepts. The most fundamental of these is that the desired effects in anesthesia are always obtained at a price exacted from the patient in the form of physiological deviations or depletions. It is the primary mission of the anesthesiologist to select indicated agents and techniques and employ them in such a manner as to cause the least degree of disturbance to bodily functions. How effectively he discharges such a grave responsibility depends primarily on his judgment, skill, and experience. It bears reemphasis that the agent or technique is of secondary importance to the administrator. On the other hand, it is also true that, in the hands of one equally skilled with all anesthetic methods, in certain circumstances there is one method which is superior to all others.

These are fundamental principles of the modern practice of anesthesia which are well known but, unfortunately, are frequently neglected, especially in the consideration of regional anesthesia. The nonspecific manner with which some writers have attempted to evaluate this method is one of the most notable factors which have contributed to improper application, poor results, and consequent disuse. It has often been stated without qualification that regional anesthesia disturbs the physiology of patients much less than general anesthesia, as if this rule applied to all circumstances regardless of the patient's condition, the extent of the anesthesia required, and the type and magnitude of the operation. I believe this is a fallacious approach for the evaluation of any method, but particularly of regional anesthesia, because its flexibility of application and diversibility of effects prohibit generalities concerning its clinical use.

In the following discussion, it is assumed that the anesthesiologist is equally competent in administering general and regional anesthesia. Moreover, it is assumed that the surgeon has the necessary experience, exercises skill and gentleness, and observes other basic principles of good surgical technique. Certainly, regional anesthesia should not be considered if these conditions do not exist. Moreover, the patient's age and physical status should be considered. Regional anesthesia may be employed to advantage in infants and children provided they are psychologically prepared and given proper medication. Elderly patients are good candidates provided the technique does not entail extensive vasomotor paralysis. It is mandatory that candidates for this or other forms of anesthesia be selected with the greatest care, that they be so prepared that they are in optimal psychological and physiological condition, and that the procedure be carried out with a degree of skill that comes only with mature experience.

Regional Anesthesia for Operations in the Head and Neck.—Improvements in intravenous and inhalation anesthesia and the widespread use of the endotracheal tube have obviated much of the need for regional anesthesia for major operations of the head and neck. General anesthesia spares the patient the psychological stress peculiar to major operations in this region; the use of the endotracheal tube assures him a patent airway; and the anesthesiologist, while still keeping away from the field of operation, has better control of the patient. These considerations are particularly important in most intracranial operations and extensive procedures of the face, nose and paranasal sinus, mouth, and throat. Because of multiple innervations of many of these structures, such operations often require block of several nerves which are deeply located near vital structures, thus making regional anesthesia much more time consuming, more difficult, and more hazardous than general anesthesia.

There are a number of clinical applications for local and regional anesthesia worthy of consideration. Lacerations of the scalp and simple depressed fractures in the presence of probable intracranial damage are best managed by the regional method. The value and necessity of regional anesthesia for craniotomy in patients in whom it is necessary to localize lesions prior to the excision of the cerebral cortex for epilepsy is well established. In posttraumatic operations on the face, maxilla, and throat, it may be advantageous to have the patient awake with an active laryngeal and swallowing reflex. Such is the case in simple fractures of the jaw which require wiring, in tracheotomy for supraglottic obstruction, and in helping to demonstrate an esophageal diverticulum. Many surgeons still prefer the patient to be awake and talking in order to help detect damage to the recurrent laryngeal nerve during thyroidectomy and other operations on the neck.

Because of the advantages they afford the patients, local infiltration and topical anesthesia have maintained their primary position for many operations on the eye and for the simpler procedures involving the nose and contiguous structures. Infiltration anesthesia remains the method of choice for tonsillectomy in adults. Most small lesions on the tongue, lip, and face are still being removed and numerous plastic operations are being performed with local, field, or nerve block. Simple operations of the neck may be performed with bilateral cervical plexus block.

Regional Anesthesia for Operations in the Extremities.—Regional anesthesia has its greatest usefulness in surgery for patients who require operation of the extremities because it affords more significant advantages for this purpose than for any other surgical application. This is particularly true of brachial plexus block for surgery of the upper extremity and sciatic-femoral block for the lower extremities. It is also true of blocks of median, ulnar, and radial nerves at elbow or wrist and of block of the peroneal or tibial nerves at knee or ankle. When properly administered and effective for the duration of the operation, these techniques provide conditions which cannot be matched by any other form of anesthesia. The outstanding advantage is that they tax the physiological economy of the patient less than does general anesthesia, since they involve only a limited area and do not interfere with the function of other organs or structures.

By producing a transient "physiological section" of the nerves supplying the involved extremity, these techniques effect specific and complete sensory blockade and thus protect the central nervous system against noxious impulses that may have deleterious effects. That such is not the case with general anesthesia has been shown by electroencephalographic studies, which indicate that afferent impulses continue to reach the central nervous system even when the patient is in deep general anesthesia.[7]

If muscular relaxation is necessary, complete paralysis may be effected, but, unlike that produced by deep general anesthesia or muscle relaxants, it is limited to the extremity and does not interfere with muscles of respiration. This precludes the need for controlled or assisted respiration and obviates the consequent cardiovascular disturbances. The concomitant sympathetic block may prove of value in some patients.

Regional blocks of the extremities do not affect electrolytes, fluids, blood chemistry, or the functions of the kidney, liver, or other parenchymatous organs, nor do they depress the myocardium and peripheral vascular bed as do barbiturates and most inhalation agents even when administered properly.[1a] These considerations are important in any patient, but particularly in the so-called poor-risk patient, who may not tolerate the stress imposed by general anesthesia. Patients who present complicating conditions, such as shock, cardiac, pulmonary, hepatic, and renal diseases, diabetes, cerebrovascular disorders, and chest and head injuries, are usually able to withstand the necessary surgery of the extremities with regional block better than with narcosis. Clinical studies have demonstrated that mortality and morbidity after regional anesthesia are considerably less than after general anesthesia.[8]

The method under discussion is particularly applicable in older patients and in urgent situations when little is known about the patient or when it is necessary to operate on a patient with a stomach full of undigested food. Whenever fluoroscopy or x-ray is a necessary adjunct to the surgical procedure, regional anesthesia eliminates the danger of explosions, respiratory depression, or obstruction in the darkened room and the patient is able to cooperate with the surgeon.

One of the most significant advantages of regional anesthesia of the extremities is the minimal postanesthetic nausea and vomiting and the immediate postoperative analgesia made possible by the use of one of the longer-acting local anesthetic agents, such as tetracaine. The accompanying sympathetic block during this period may prove of value in the prevention or minimization of postoperative reflex sympathetic dystrophy. All these factors permit earlier ambulation and oral feeding and consequently decrease the incidence of postoperative pulmonary, gastrointestinal, and thromboembolic complications.

The disadvantages of regional anesthesia are the slightly slower onset of action, failures in providing complete anesthesia, and complications which occasionally occur. Chloroprocaine, lidocaine, and hexylcaine, because of their rapid action and superior penetrating powers, have decreased the first two disadvantages, but they still exist. With experience and care complications should be minimal. Pneumothorax occurs with brachial block, while postblock neuropathy occurs only if the nerves are injured and if high concentrations of the anesthetic are used.

It hardly needs to be emphasized that the significance of these advantages and disadvantages depends primarily on the ability of the anesthesiologist. For example, there is little doubt that a brachial plexus block skillfully administered to an elderly patient with emphysema who is to have a complex reconstructive operation of the hand which will take several hours provides advantages which cannot be duplicated by any method of general anesthesia. On the other hand, the same procedure improperly performed by one who is quite or relatively unacquainted with the technique and who misses the target, thereby producing inadequate analgesia and puncture of the apex of the lung, will cause far more harm to the patient than several hours of deep general anesthesia.

Extradural block, effected either via the sacrococcygeal hiatus (caudal anesthesia) or by the spinal epidural route, provides, as previously mentioned, the advantages of peripheral nerve block and of subarachnoid block without most of their disadvantages. The continuous technique may be employed to produce sympathetic block and relief of pain during the preoperative and postoperative periods, as well as surgical anesthesia in patients with vascular disorders (embolism) or severe trauma.[4b] Single-dose or fractional subarachnoid block anesthesia limited to the lumbar and sacral segments is, of course, simpler to execute and produces more rapid anesthesia than epidural anesthesia. It is the most common regional technique employed for surgery of the lower extremity.

Operations on the Chest.—Minor operations involving the breast or other structures of the chest wall may be best performed with regional anesthesia, especially in aged or seriously ill patients. This method is also preferable when the patient is to be prone or in any other operative position that makes the use of an endotracheal tube necessary. In such cases, field block or intercostal block or both, if completely adequate for operation, are preferable to segmental epidural or subarachnoid block. Regional anesthesia, usually in the form of paravertebral-brachial plexus-infiltration block, is still the favorite method for thoracoplasty in many thoracic surgical centers.[1b]

During the past decade, numerous writers have described and advocated various regional anesthesia techniques, high and segmental subarachnoid block and segmental epidural block, in particular, as the primary method of anesthesia for thoracoplasty, pulmonary surgery, and other intrathoracic operations.[9] Among the advantages of regional anesthesia cited by most of its advocates are the facts that the risk of explosion is eliminated, bleeding is less, the movement of the lungs and their intrathoracic structures is minimized since reflexes are retained by the patient, secretions are better controlled, and the spread of disease is reduced. It is also claimed that postoperatively the conscious patient has less respiratory depression, nausea, vomiting, and morbidity and requires less nursing care.

In spite of their virtues, none of these procedures has been employed widely. Experience in our clinics with each of them and with general anesthesia in over 600 patients suggests that these advantages are more apparent than real. In spite of intensive psychological preparation, adequate premedication, and complete analgesia, the patients operated on in our clinics with only regional anesthesia became apprehensive when the chest was opened; they later became restless, began to move, and interfered with the surgeon's task, and they frequently developed paroxysms of cough when the bronchial tree was manipulated. Moreover, many of the patients who had epidural or subarachnoid block developed a degree of hypotension which caused concern and required treatment.

In my opinion, patients undergoing intrathoracic operations do better with modern balanced anesthesia, which affords optimal operating conditions for the surgeon and better control of the patient by the anesthesiologist. Postoperative results concerning incidence of spread, morbidity, and mortality that were obtained with the general method in patients with tuberculosis operated on in our clinics have been better than those reported by the advocates of regional anesthesia.

Abdominal Operations.—The greatest decrease in the use of regional anesthesia has occurred in surgery of the abdomen. For years spinal anesthesia was considered the peerless method for intra-abdominal surgery because it provided optimal operating conditions. Muscular relaxation, unequalled by that achieved even by very deep general anesthesia, contracted intestines, quiet operating field and diminished bleeding, minimal or no effects on electrolytes, body fluids, acid-base balance, liver, kidneys, and other parenchymatous organs, and absence of depression of the respiratory center were often cited as some of the advantages of this method over general anesthesia. The same advantages have also been claimed for spinal epidural block, caudal anesthesia, and bilateral intercostal-posterior splanchnic block, which, though used with much less frequency than spinal anesthesia, have been advocated as substitutes for subarachnoid block. Field or intercostal block in combination with light general anesthesia has also been advocated for intra-abdominal operations, especially in elderly or poor-risk patients.

But while these benefits of regional anesthesia in intra-abdominal surgery have long been recognized and may be cited as arguments favoring its use, each of these techniques presents certain disadvantages which have been important factors in their replacement by general anesthesia in most surgical clinics. Since these procedures, except for field and intercostal block, interrupt all of the vasomotor segments which supply the splanchnic region, a moderate to severe hypotension usually results. In addition, there is paralysis of the lower intercostal muscles and consequent diminished tidal exchange, which admittedly may be compensated by the conscious patient. Moreover, many patients undergoing operation on the viscera of the upper abdomen, particularly the stomach, frequently experience discomfort and develop retching, vomiting, hiccoughs, and occasionally cardiovascular and respiratory disturbances. These reflex responses are due, of course, to stimulation of unanesthetized sensory pathways associated with the phrenic, vagus, and sympathetic nerves consequent to exploration of or traction on the viscera. They can be obviated by injecting these structures with a local anesthetic, but, unfortunately, many surgeons are not adept with these procedures or do not want to bother with them, so that it then becomes necessary to administer light general anesthesia and to use an endotracheal tube. The general anesthetic depresses the respiratory center and homeostatic mechanisms so that respiratory compensation is diminished and it then becomes necessary to assist ventilation. In such instances the use of regional anesthesia is still advantageous since less general anesthesia is necessary than in its absence and thus spontaneous, albeit depressed, respirations are retained. Nonetheless, these disadvantages of regional anesthesia (extensive intercostal paralysis, hypotension, frequent occurrence of discomfort, and retching), considered together with the advantages of the improved techniques of balanced general anesthesia, decrease markedly the disparity which formerly existed between the two. It is no longer a matter of comparing the profound depressant effects on the peripheral vascular bed, liver, kidneys, and heart of deep ether anesthesia administered for two or three hours for a gastrectomy with the effects of three-hour subarachnoid or peridural block.

In trying to select the best method for a patient, the anesthesiologist must compare the potential hazards inherent in the prolonged use of muscle relaxants with the potential hazards and possible disadvantages of the regional anesthetic. If the anesthesiologist is capable of administering both methods equally well, the patient and surgeon are the deciding factors. If the surgeon is gentle in exploring the upper abdomen and in placing traction on the stomach, gallbladder, or other viscera, and if the patient's condition does not contraindicate an extensive vasomotor block, regional anesthesia offers some advantages. On the other hand, if the habits and behavior of the surgeon are such that the patient is likely to experience physical and mental discomfort during most of the operation, it is far better to use general anesthesia from the beginning. Whether muscular relaxation is to be attained with a regional block or with muscle relaxants depends on the skill and experience of the anesthesiologist and the cardiovascular status of the patient. Certainly, if the patient has shock, hypovolemia, or marked arteriosclerosis, it is best to avoid regional block because, although by using vasopressors one can maintain the blood pressure, these patients fare much better with properly administered balanced anesthesia.

Although some points made in the preceding paragraphs apply to the use of regional anesthesia for surgery of the lower abdomen, there are significant differences that make this technique one of the better anesthetic procedures for operations in this region. Operations in the lower abdomen usually do not entail stimulation of the vagus and other unanesthetized sensory nerves. Moreover, it is not necessary for analgesia to extend above the seventh or sixth thoracic neurotome, so that there is significantly less incidence of severe hypotension and intercostal muscle paralysis. Regional anesthesia may be used to advantage in patients who require appendectomy, operations involving the jejunum, ileum, cecum, and colon, hysterectomy and other gynecologic procedures, cesarean section, and some urologic operations. On the other hand, in renal surgery the trend is to avoid regional techniques, such as spinal, segmental epidural, and paravertebral blocks, and to employ general anesthesia with an endotracheal tube, because the respiratory impairment consequent to the operative position and/or surgical pneumothorax requires assisted or controlled respiration.

Proper application of regional anesthesia for operations on the abdominal wall require experience and care. Small lesions may be removed with the patient under field block anesthesia and simple hernias repaired with use of intercostal block, provided there is no need for intra-abdominal manipulations. Extensive herniorrhaphy of the upper abdominal wall may be performed with the patient under spinal (subarachnoid) or epidural block anesthesia, but, if the patient's condition requires the avoidance of hypotension, it is best to use general anesthesia. On the other hand, operations on the abdominal wall below the umbilicus and in the inguinal and femoral regions constitute important clinical applications of regional anesthesia.

Operations on the Spine and Adjacent Structures.—Spinal anesthesia with use of hypobaric solution has for many years been considered the procedure of choice for operations on the spinal column because it obviates the many problems inherent in general anesthesia administered to patients in the prone position. The same claims have been made recently for spinal epidural block anesthesia. These procedures provide excellent analgesia for laminectomy in the lumbar and thoracic region and thus obviate the need for general anesthesia sufficiently deep to permit the introduction and maintenance of an endotracheal tube. Paravertebral block anesthesia is more difficult and time consuming for this purpose; it requires multiple punctures, and the results are less predictable. Since the regional methods do not affect the respiratory center, the patient is able to overcome the decrease in tidal exchange consequent to being in the prone position.

Segmental epidural block is by far the best anesthetic method with which to perform chordotomy (spinothalamic tractotomy). The segmental type of anesthesia provides analgesia for the conscious patient and optimal operating conditions for the surgeon, affording him an unparalleled opportunity for repeatedly testing sensations in the lower portion of the body during the course of the incision of the anterolateral quadrant of the spinal cord.

Perineal Operations.—Despite the general trend to use less regional anesthesia in surgery, this method has maintained its primary position for surgery of the perineum and of the lower urinary, intestinal, and genital tracts. Spinal anesthesia and, to a lesser extent, caudal and spinal epidural block are considered the procedures of choice for transurethral, perineal, and suprapubic resections of the prostate, for operations involving the urinary bladder, and for gynecologic procedures on the perineum. Since most of these procedures are done on elderly patients whose pulmonary, cardiovascular, hepatic, and renal function and electrolyte fluid and acid-base equilibrium are already burdened by age, a regional block limited to the lumbar and sacral neurotomes provides benefits in the form of lack of physiopsychological effects unmatched by those of general anesthesia. The use of the continuous technique enhances this method.

So-called saddle block anesthesia, produced either by injections of hypobaric or hyperbaric solutions into the subarachnoid space or by injections into the sacral canal (caudal block) or lower lumbar epidural space, is also considered the method of choice for anorectal operations, especially when the prone, or Buie "jackknife" positions are used. The hazards of inhalation anesthesia employed in these positions without the benefit of an endotracheal tube are obviated by the regional method. Transsacral and lumbar paravertebral block has the aforementioned disadvantages of paravertebral block and is warranted only when other regional techniques cannot be completed in patients in whom general anesthesia is contraindicated.

In recent years, the advantages of regional anesthesia in obstetrics have become fully appreciated. This method not only offers the aforementioned benefits for the mother but does not produce fetal depression. These benefits are particularly important in premature births and with cesarean sections. Moreover, regional anesthesia is the method of choice for the patient with a stomach full of undigested food.

Summary

In properly selected cases, regional anesthesia offers advantages to the patient and the physician which are difficult to duplicate with general anesthesia. It is particularly useful in emergencies and in operations of the extremities, lower abdomen, back, and superficial parts of the body. It produces less physiological disturbances during the operation and fewer postoperative complications. In obstetrics it may be preferred because of the benefits derived by the mother and infant. It offers the surgeon and obstetrician optimal operating conditions.

In order to obtain good results with regional anesthesia, it is essential to have thorough knowledge of neuroanatomy, the various block techniques, the pharmacological properties of the local anesthetic drugs, and possible complications with prophylaxis and treatment. Proper psychological and pharmacological preparation of the patient is important. Regional anesthesia is particularly useful as a diagnostic, prognostic, and therapeutic tool in the management of intractable pain and various other medical disorders.

Modern balanced general anesthesia, consisting of light inhalation and/or intravenous anesthesia and muscle relaxants, is superior to regional techniques in major operations of the head, neck, and intracranial cavity, in pulmonary surgery, and in other major operations within the chest. Balanced general anesthesia is more practical in the surgery of the upper abdominal cavity than regional anesthesia. In addition to providing better operating conditions for the surgeon, this method obviates discomfort and certain complications, such as hypotension and hypoventilation, which are particularly important problems in poor-risk patients.

315 S. "K" St.

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ATAXIC FORM OF POLIOMYELITIS.—The early descriptions of poliomyelitis, which led to the final differentiation of this infectious disease, sometimes included an ataxic form of symptomatology. . . . Mild ataxic symptoms and muscular tremors have been described by many authors as a prelude to motor weakness. The purely ataxic form of this disease has been practically discarded by all modern authorities and is almost completely omitted from mention in current textbooks and discussions of clinical symptomatology. . . . Ataxic symptoms, and most especially sharply unilateral ataxia, are most uncommon in poliomyelitis. . . . The widespread inflammatory involvement of the central nervous system that occurs in poliomyelitis may be accompanied by many bizarre and unusual symptoms. The clinical picture of a patient is briefly detailed, simply to illustrate the occurrence of severe unilateral ataxia and signs of cerebellar involvement in a patient who proceeded to have on the opposite side of the body eventual paralysis of the tibialis anterior, typical of the late residual of poliomyelitis. The occurrence of coincidental and classical severe poliomyelitis in her 16 year old son lends almost unmistakable evidence of the nature of the pathogen.—E. B. Shaw, M.D., Ataxic Form of Poliomyelitis, *Journal of the American Medical Women's Association*, December, 1957.

CLINICAL EVALUATION OF ACENOCOUMAROL (SINTROM), AN ANTICOAGULANT OF INTERMEDIATE RANGE

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and
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Acenocoumarol, an orally administered anticoagulant with intermediate duration of effect, was used in the treatment of 100 hospitalized patients. The largest group consisted of 28 patients with spontaneous acute peripheral phlebitis. The treatment was aimed to keep the prothrombin time within a therapeutic range of between 23 and 37 seconds. Many patients showed a wide range of variability, so that it was necessary to define a broader, clinically practical range between 20 and 43 seconds. The average initial dose proved to be 21 mg. of acenocoumarol, and in over one-third of the patients the prothrombin time was within the clinically practical range 18 hours later. The average maintenance dose was 6.6 mg. per day. Side-effects were few; no gastrointestinal intolerance was seen, and only five patients had minor bleeding episodes. Some patients continued to receive anticoagulant therapy on an ambulant basis after leaving the hospital, and one continued it for 64 days. This experience illustrated some significant advantages of acenocoumarol, especially the possibility of controlling the intensity of its effects and the time of their disappearance.

Since the introduction of agents that produce therapeutic hypoprothrombinemia, a search has been made for a smooth-acting anticoagulant of intermediate range. The properties which the ideal anticoagulant should possess have been enumerated by other investigators.[1] In general, the investigations in recent years have been directed toward finding an anticoagulant with a more rapid onset and shorter duration of action than bishydroxycoumarin (Dicumarol) yet one with a longer effect than the short-acting agents, such as ethyl biscoumacetate (Tromexan ethyl acetate). The synthesis of acenocoumarol (Sintrom, formerly G-23350), by Stoll and Litvan [2] in 1955 produced an agent which seems to have fulfilled these requirements. The purpose of this paper is to evaluate acenocoumarol as an anticoagulant per se and not to evaluate therapeutic results on the various diseases treated.

Acenocoumarol is a member of the coumarin series; its structural formula is shown in figure 1. It is a stable compound, supplied in 4-mg. tablets which are scored so that the patient can take the drug in increments of 1 mg. Unlike some of the other anticoagulants, acenocoumarol is odorless and tasteless [3] and is well tolerated by the gastrointestinal tract. We have found, as have Neill and others,[1a] that hypoprothrombinemia can be produced in virtually all patients in 48 hours or less and also that a therapeutic response may sometimes be expected in 24 hours.[4] According to Aeppli and Rubeli,[5] the onset of action of acenocoumarol occurs within the same period of time as that of ethyl biscoumacetate. However, acenocoumarol maintains its optimal action for 15 to 20 hours, after which recovery occurs rapidly. Recovery from the action of the drug is usually complete 48 hours after stopping administration of the drug but could take up to 72 hours if the prothrombin time were excessively prolonged (over 40 seconds).[6]

Phytonadione (vitamin K_1, Mephyton) has been shown to be effective in accelerating the restoration of acenocoumarol-induced hypoprothrombinemia to normal. The availability of phytonadione, both as an emulsion for intravenous use and as a tablet for oral administration, has provided an efficient and reliable method of reversing therapeutic hypoprothrombinemia.

Acenocoumarol is about 40 times more potent than ethyl biscoumacetate.[7] Our average maintenance dose was 6.6 mg. Two milligrams of this agent is said to be roughly equivalent to 25 mg. of bishydroxycoumarin.[1a] This potency of acenocoumarol gives it one great advantage—only small increments are required to increase or decrease dosage.

Acenocoumarol disappears from the body rapidly, but, unlike ethyl biscoumacetate, which is metabolized to an inactive form,[8] the rate of disappearance of acenocoumarol from the body is determined by its rate of excretion, apparently in an unaltered form as only small amounts of inactivated derivatives have been detected in the urine.[9] No definite relationship between dosage and weight has been observed, and it has been our experience

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that liver function determines variation in doses between patients.[1b] The lack of gastrointestinal side-effects has been noted by several observers.[10] Liver function tests and urine examinations performed before and during the time of clinical trial have shown no evidence of toxicity.[11]

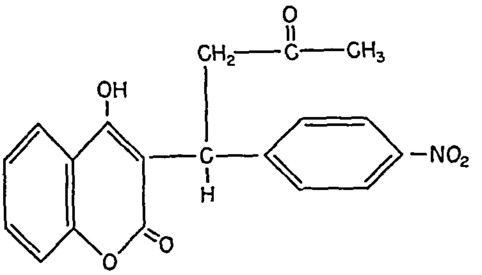

Fig. 1.—3-(α-acetonyl-*p*-nitrobenzyl)-4-hydroxycoumarin.

Materials and Methods

This report is based on our experience with 100 consecutively hospitalized patients who received acenocoumarol. Of these patients, 54 were women. The ages ranged from 13 to 84 years, with an average of 58. In general, acenocoumarol was given under the direction of only one person (C. C. B.), except that on Sunday the dose was administered by the attending physician on the peripheral vascular service. Quick's one-stage prothrombin test [12] was used to determine the prothrombin time in seconds, and this value was divided by the control time in seconds and expressed as percentage of control prothrombin time on an exponential curve (fig. 2).

The patients were divided into three groups according to the smoothness of control achieved: (1) the most desirable range theoretically, (2) a clinically practical range, and (3) an erratic range.

A value of two to three times the control (52 to 32%, respectively) was considered to be the most desirable therapeutic level. A second group was made of those with prothrombin times within a clinically practical range, which included times falling within 60 and 28% (20 and 43 seconds, respectively, with use of an average control thromboplastin time of 12 seconds). It has been our experience in 16 years of anticoagulation therapy that extension or recurrence of venous thrombosis or embolism is exceedingly rare at prothrombin levels of 60%. Hemorrhage is rare above 28%.

The tablets of acenocoumarol, including the loading doses, were administered once daily—usually between 3 and 6 p. m. Blood for prothrombin time determination was usually drawn between 7:30 and 9:30 a. m. Thus, the prothrombin time was known before the daily dose of acenocoumarol was ordered.

This report deals only with patients who were hospitalized and received acenocoumarol on a short-term basis.

Reasons for Anticoagulation Therapy

One-fourth of the patients received acenocoumarol as a postoperative prophylactic measure; 9 of these gave a previous history of acute phlebitis and one of pulmonary embolism, 12 patients were given anticoagulation therapy after ligation and stripping for varicose veins, and 3 were given the drug for debilitation. In most of these cases, acenocoumarol was begun on the second or third postoperative day.

The largest group, including 28 patients, had spontaneous acute peripheral phlebitis. These patients had isolated phlebitis and were not grouped with those with chronic recurrent phlebitis, of whom there were seven. A significant proportion of the total group (10%) were treated because of symptoms and signs of cerebrovascular thrombosis or insufficiency, usually occurring as basilar artery or internal carotid artery syndromes. Most of the patients with chronic relapsing thrombophlebitis and those with cerebrovascular insufficiency continued to receive anticoagulation therapy with acenocoumarol on a long-term ambulatory basis. Other conditions for which this treatment was given included acute postoperative peripheral phlebitis (13), acute pulmonary embolus (10), acute myocardial infarction (3), postoperative sympathectomy after arterial thrombosis (2), lymphedema precox (1), and persistent angina pectoris (1).

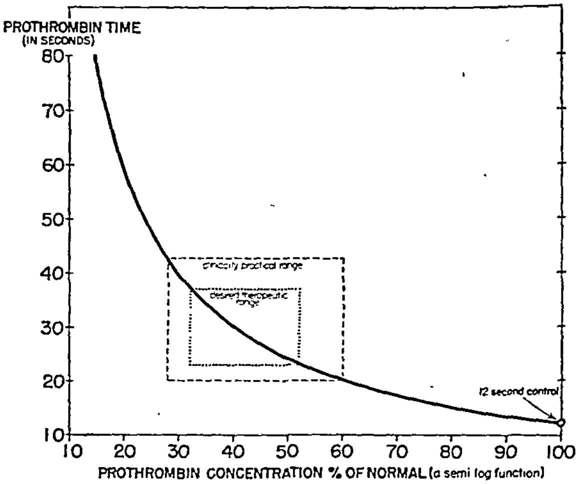

Fig. 2.—Curve of prothrombin time in seconds plotted as percentage of control prothrombin time of 12 seconds.

Dosage and Duration of Treatment

The initial dose of acenocoumarol was 24 mg. in 52 patients, and the smallest loading dose was 4 mg. The average initial dose was 21 mg. for the entire group. None of our patients received more than 24 mg. as an initial dose. The dose on the second day ranged from zero to 20 mg. and averaged 11.4 mg. These dosages were similar to those of other investigators,[13] although initial doses up to 40 mg. have been administered.[14] The dose on the second day was usually 4 to 8 mg. less than the initial dose.

The prothrombin time 16 to 18 hours after acenocoumarol therapy was begun (that is, the second treatment day) averaged 66.2%. Thirty-seven patients had a prothrombin time of less than 60% on the second treatment day, and 63 patients had a prothrombin time of less than 75% on the second treatment day. This means that in over one-third of the patients the prothrombin time was in the practical therapeutic range 18 hours after therapy was started. The average maintenance dose was 6.6 mg.; this is slightly higher than the 5.9-mg. dose noted by Neill and others.[13] The range of the daily dose was from an average low of 3.6 mg. to an average high of 11.3 mg.

The minimum duration of therapy with anticoagulants was 5 days; however, one patient was treated for 64 days. The average length of anticoagulation therapy while the patient was in the hospital was 10.6 days. This figure would seem to indicate a relatively short duration of anticoagulation therapy. However, it should be noted that a large group (25%) received such therapy only as a postoperative prophylactic measure and also that several other patients went on to receive this treatment on an ambulatory program as soon as the maintenance dose was established in the hospital.

Efficacy of Control

A total of 852 prothrombin time determinations was performed, excluding the determination after the initial dose of acenocoumarol. Five hundred twenty (61%) of the prothrombin times fell within the 52 to 32% therapeutic level. This figure would be appreciably increased if the prothrombin times of less than 32% were included. In no case did the prothrombin time fall to less than 19%. The greatest number of prothrombin levels below the 32% level were in the 22 to 26% group, which is still not in a danger zone—especially for the hospitalized patient, with the ready access to intravenously or orally given phytonadione.

Six hundred seventy (79%) of the prothrombin concentrations fell within the clinically practical therapeutic range (prothrombin times between 60 and 28%). In 48 patients they were noted to be below 28%, at least at one determination. Again, none was lower than 19%. In other words, 83.6% of the prothrombin concentrations were consistently below the 60% level by the third day and after. In regard to the individual patient's response to acenocoumarol, 31 patients had prothrombin times in the therapeutic range over 75% of the time and 70 had clinically practical control over 75% of the time.

Eight patients were out of the 28 to 60% range at least half the time and came under the category of erratic range.

Figure 3 shows typical therapeutic responses; figure 4 (*left*) shows a patient within the clinically practical therapeutic range, and figure 4 (*right*) illustrates the erratic range that can occur with acenocoumarol.

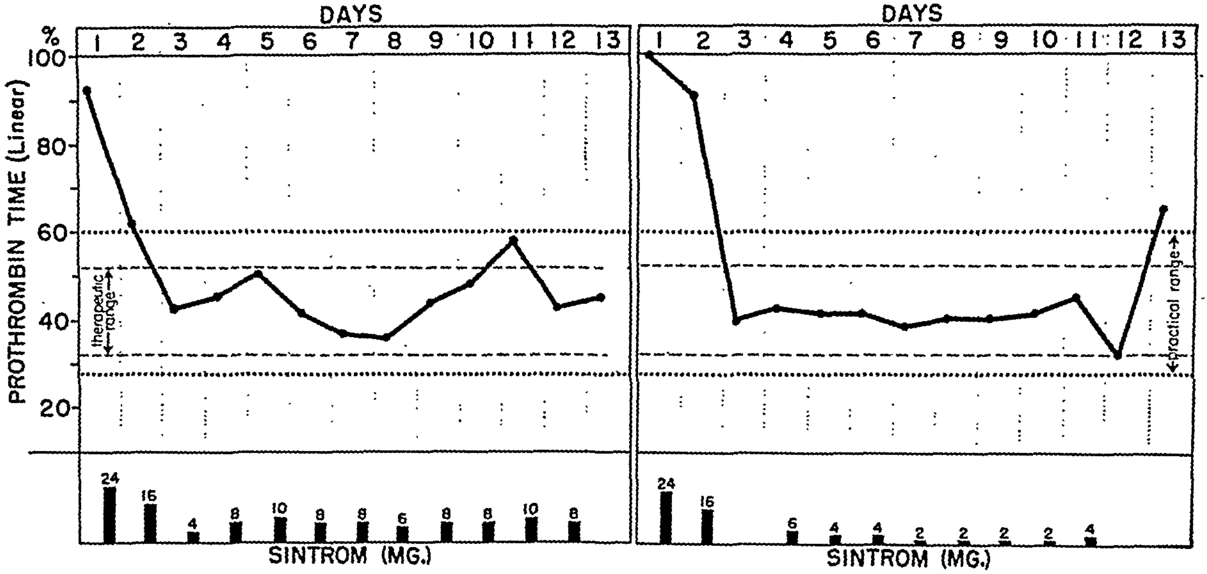

Fig. 3.—Typical therapeutic responses to acenocoumarol (Sintrom). *Left*, curve of prothrombin time in 64-year-old man with acute phlebitis and acute pulmonary embolus. Except on 11th day, prothrombin time stayed consistently within therapeutic range. Note small increments of dosages required. *Right*, curve in patient with acute thrombophlebitis of thigh after mid-thigh amputation, showing smooth control similar to that obtained in many cases with only small increments in dosages.

Comment

We found acenocoumarol to be a feasible and interesting anticoagulant which caused only a small number of complications. Only five patients manifested minor bleeding episodes. One patient had a petechial rash of one extremity which developed on the sixth day of treatment. A platelet count on the following day showed a level of 154,000 per cubic millimeter, and this was unchanged two days later. Marrow aspiration five days after the rash showed an essentially normal bone marrow with a slight increase of eosinophils. Bleeding from a T tube and from around a urinary catheter was seen in two patients. One patient reported about 10 cc. of blood with a bowel movement; however, anticoagulation therapy was continued without further difficulty. The fifth patient had rheumatic heart disease with auricular fibrillation and recurrent pulmonary emboli. Acute phlebitis of the femoral vein also developed in this patient early in his hospital stay, and it was then that anticoagulation therapy was begun. It was continued despite persisting bloody sputum and, at times, gross clots in the sputum. The patient received ambulatory anticoagulation therapy for several months. This patient probably does not warrant inclusion in the group with unfavorable reactions, but his case is included for the sake of completeness and interest.

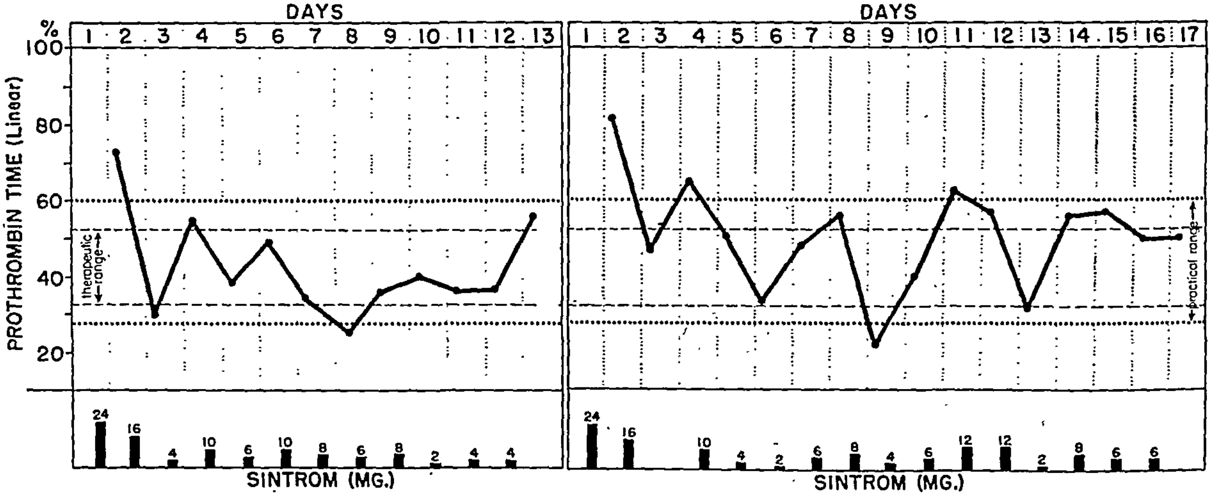

Fig. 4.—*Left,* curve of prothrombin time in 45-year-old man with acute phlebitis. Prothrombin time throughout administration of acenocoumarol (Sintrom) remained consistently within clinically practical range. *Right,* curve in 68-year-old woman with chronic thrombophlebitis and episode of acute phlebitis before admission. Note erratic response to acenocoumarol after omission of daily dose; smaller increments in doses might have produced smoother effect.

No gastrointestinal intolerance was observed, nor did the patients find the tablets to be distasteful. The one-dose-a-day treatment was appreciated by the patient and by the medical and nursing staff. Performance of emergency prothrombin time determinations was rare.

Especially reassuring was the knowledge that the group with low prothrombin levels made a fairly rapid return to a safe range. It was noted with this group that if the patient were allowed to go without acenocoumarol on a day when the prothrombin time was below a safe level, the smooth control levels were attained only with difficulty; several such patients eventually showed erratic curves (fig. 4 *right* and 5). In these cases, it would seem to be advisable to give one-half or one-third of the usual maintenance dose to prevent the escape from smooth control. However, even though a patient had a minor bleeding episode or the laboratory reported a low prothrombin time, the omission of the daily dose, without any other treatment, would allow the prothrombin time to return to a safe level at a fairly rapid rate. This fact makes the drug safer for use in treatment of ambulatory patients.

Admittedly, the clinically practical level is an arbitrary classification. Yet, we feel its use is justified, as this is a clinical report involving a number of variables which must be included in the everyday practice of medicine. Wright and others [15] have concluded that all prolongations of the prothrombin time during bishydroxycoumarin therapy (including the *minimal ones*) were associated with a substantial reduction in thrombotic episodes.

We found, as had other observers,[16] that the initial loading dose should be followed by a substantial, though reduced, dose on the second day. Patients who received less than the usual dose on the second treatment day were more likely to have an erratic response.

Forty-two patients received heparin sodium (Depo-solution) as an intramuscular injection in one or more doses on the first day of treatment with acenocoumarol or on the day before or after the initial dose of acenocoumarol was administered.

Summary

In a review of 100 hospitalized patients who received acenocoumarol (Sintrom) as an anticoagulant, this agent was found to be dependable and its effects were predictable. For the most part, this study confirms the findings of other workers. The only toxic reactions observed were a few minor hemorrhagic manifestations—an accepted risk for anticoagulation therapy with any agent. Two of the five patients who experienced slight hemorrhage continued to receive anticoagulation therapy without further incident.

The prompt effect of acenocoumarol, within 48 hours, and the following loss of effect within the same length of time lead to rapid control of thromboembolic disease and to quick control of hemorrhage. The small increments required in change of dosage add to the accuracy and smoothness of control. Smoothness of control is also obtained because acenocoumarol maintains sufficient prolongation of the prothrombin time to allow a 24-hour period to elapse between doses. The use of acenocoumarol as an anticoagulant of intermediate range provides a useful and reliable tool for the proponents of anticoagulation therapy.

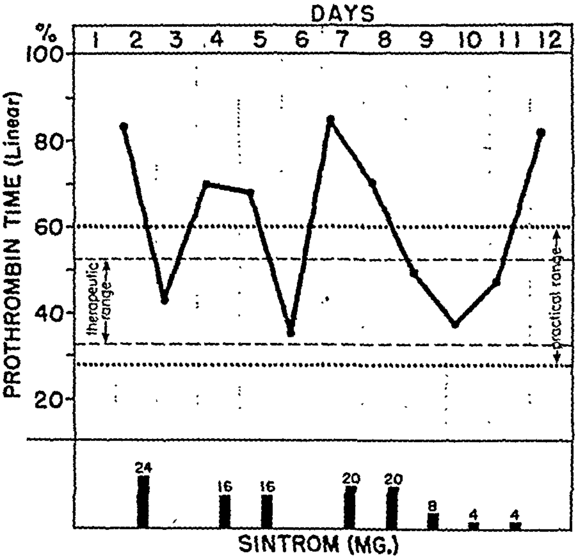

Fig. 5.—Curve of prothrombin time in 61-year-old woman who had phlebitis 13 days after subtotal thyroidectomy was done. Note omission of daily dose of acenocoumarol (Sintrom) and difficulty in controlling prothrombin time.

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Miss Sherbie Mayhew provided technical assistance in preparing the data for this study.

The acenocoumarol used in this study was supplied as Sintrom by Geigy Pharmaceuticals, Ardsley, N. Y.

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ORAL DIAGNOSIS OF SYSTEMIC DISEASE

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Enamel hypoplasia may be produced during the formation period of enamel matrix by nutritional deficiency (particularly vitamins A and D), endocrine dysfunction and generalized infection as in the exanthemas, and prenatal syphilis. Gingival hyperplasia may occur in puberty and in pregnancy and sometimes in patients receiving diphemylhydantoin sodium. Oral pigmentation can be caused by the administration of a bismuth, silver, or lead preparation. Quinacrine hydrochloride produces a yellow-brown pigmentation in the cuspid regions and a yellowish oral mucosa. Anemia may be readily diagnosed by examination of the tongue. There are a number of mouth lesions which are closely associated with tension and nervous strain. These include periodontal disease, aphthous stomatitis, acute necrotizing gingivitis, erythema multiforme, lichen planus, and probably pemphigus. It has been strongly suggested that the lesions of lichen planus, some 50% occurring only in the mouth, are the product of psychic stimulation. Chronic emotional tension, producing a change in the chemistry of saliva, can be the cause of periodontal disease.

There are two opposite poles on the question of the ability to diagnose systemic disease by examination of the mouth. At one extreme is Kreshover.[1] He writes that, unfortunately, many dental and medical practitioners are overly impressed by the seemingly remarkable ability of some clinicians, essayists, and authors to make diagnoses merely by examining an isolated lesion in or about the mouth. Too often, says Kreshover, the expert fails to mention the essential part played by consultants and laboratory technicians in providing a correct diagnosis. At the opposite pole is a discussion aptly titled "The Tell-Tale Mouth" by Fabricant[2] who says that the mouth provides otolaryngologists with a unique opportunity to observe the earliest findings of systemic disease.

The two viewpoints are not completely irreconcilable. It is indeed true that certain physiological changes such as pregnancy, growth period, lactation, and aging may of themselves produce nutritional deficiencies by increased demands on the organism. These deficiencies are often manifest in mouth changes which cannot be differentiated clinically. It is also true that the laboratory and the consultant may both be required to confirm a clinical impression. But how much worse it would be not to be able to gain a clinical impression from an examination of the mouth and thereby delay confirmation of a diagnosis until irreversible damage had been done.

Much has been written on the appearance of the mouth in a multiplicity of systemic conditions. I shall briefly outline and review some of these and then discuss a phase of oral diagnosis which has been neglected—the psychosomatic.

Appearance of the Mouth in Systemic Disease

Changes in Teeth.—Enamel hypoplasia may be produced during the formation period of enamel matrix by nutritional deficiency (particularly vitamins A and D), endocrine dysfunction and generalized infection as in the exanthemas, and prenatal syphilis. Enamel hypocalcification is most frequently produced by excessive fluorine in the drinking water. One part per million of fluoride in the water supply has been shown[3] to reduce children's dental decay by 50 to 60%. Fluorosis has been reported[4] in communities with a natural water fluoride level of 8 ppm. To cause the mottled enamel of fluorosis the water must contain more than 1 ppm of fluorine and be consumed during the tooth development period.

Changes in Gums.—Gingival hyperplasia may occur in puberty and in pregnancy. In puberty, there is increased size of the papillae and thickening of the gingival margin due to hyperemia, edema, and increased vascularity. Establishment of hormonal balance is curative. Pregnancy gingivitis is quite similar, and local irritation is a common precipitating factor. A small percentage of patients with pregnancy gingivitis develop localized tumors of the gums.

Gum hyperplasia develops sometimes in patients receiving diphenylhydantoin (Dilantin) sodium. Gingivoplasty may be necessary where continuation of the therapy is required. Leukemic hyperplasia is characterized by a marked increase in tissue bulk due to an infiltration of cells. It is most common in monocytic and granulocytic (myelogenous) leukemia. In general, surgical procedures are contraindicated.

Oral Mucosa.—The oral mucosa often reveals systemic pathology. Oral pigmentation can be caused by the administration of a bismuth, silver, or lead preparation. A dark blue pigmentation can usually be seen in the buccal mucosa. Quinacrine

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Read before the Section on Laryngology, Otology, and Rhinology at the 107th Annual Meeting of the American Medical Association, San Francisco, June 26, 1958.

(Atabrine) hydrochloride produces a yellow-brown pigmentation in the cuspid regions and a yellowish oral mucosa. Such pigmentation may also occur in jaundice, carotinemia, hemochromatosis, and adrenal cortical hypofunction (Addison's disease).

Changes in the Tongue.—The tongue is more frequently diagnostic in avitaminosis than are other areas of the mouth. The nutritional disorder most often visualized in the mouth is vitamin B complex deficiency. This B complex group includes thiamine, nicotinic acid, riboflavin, cyanocobalamin, folic acid, pyridoxine, choline, biotin, and pantothenic acid. It is rare that but one of the group is involved. Clinically, the tongue is edematous, rather purplish, and with enlarged fungiform papillae. Angular cheilosis and circumoral pallor generally complete the clinical appearance.

Anemia may be readily diagnosed by examination of the tongue. In pernicious anemia, there is, in the early stage, a red, sore tongue and then later, pallor and atrophy of the dorsal surface of the tongue with redness of its margin. In polycythemia vera, the tongue is engorged and cyanotic. In agranulocytosis there is often a gangrenous area in the tonsil or pharynx. The tongue during scarlet fever, the Koplik spots of measles, and the pharyngeal vesicles of chicken pox are all too well known to require additional description.

Miscellaneous Effects.—Drug idiosyncrasy may affect various areas of the mouth. Black hairy tongue is not uncommon after antibiotic therapy. It occasionally occurs after x-ray therapy or in patients with a gastric ulcer. Superficial necrosis, swelling, and ulceration of the gingiva have been reported in 48 hours after the administration of pyridium for urinary infection. Tuberculosis, syphilis, histoplasmosis, and actinomycosis may all produce mouth lesions which tax clinical acumen and yield their diagnosis only to laboratory study.

Psychosomatic Lesions

Though this list of mouth lesions associated with systemic disease is far from complete, I should like to turn to the psychosomatic group. F. P. McCarthy and P. L. McCarthy[5] reported on 4,728 mouth cases and described 11% of the oral lesions as due to psychic causes. In 574 patients, the lesion or symptom was cancerophobia (more often related to tongue) in 216 cases, papillitis in 211, oral lichen planus in 97, habit biting in 27, ptyalism in 15, cheilitis exfoliativa in 6 (of 40 cases), and syphilophobia in 2.

Chavoor[6] points out that chronic emotional tension, producing a change in the chemistry of saliva, can be the cause of periodontal disease. Tension by affecting the autonomic nervous system can alter circulation and reduce tissue resistance of the oral musoca. One can readily see how this might promote bacterial and viral invasion.

Moulton[7] has made an excellent study of the relationship between anxiety and oral lesions. She points out that the mouth is the earliest area for pleasurable satisfaction and many adults continue to utilize it for the same purpose in their eating, drinking, smoking, or sexual enjoyment. Phobias about immobilizing the mouth often develop because of its vital part in eating and breathing and primitive defense. Dr. Moulton emphasizes the special sexual symbolism of the mouth in women and states that oral bleeding is frequently used in dreams to refer to rape, menstruation, and abortion.

There are a number of mouth lesions which are closely associated with tension and nervous strain. Acute necrotizing ulcerative (Vincent's) stomatitis was once presumed to be an infectious disease. But transmission of the clinical state has never been consummated by the use of the organisms. Simultaneous spread of ulcerative stomatitis among groups of soldiers is now believed to be due to a similarity of stress conditions.

The oral lesions of the erythema multiforme group are on the increase. This group includes Stevens-Johnson's, Behcet's, and Reiter's syndromes. They are probably all variants of erythema multiforme exudativum, described by Hebra in 1860. Typically, stress plays a part in etiology. A typical patient was a female with a diabetic child of whom she was the sole support, her husband having deserted her. Her mouth ulcerations improved rapidly on steroid therapy, but she developed a recurrence of the lesions when she had to stop working temporarily to care for her child and another recurrence when a situation arose at work which she could not handle.

It has been strongly suggested[5] that the lesions of lichen planus, some 50% occurring only in the mouth, are the product of psychic stimulation. Aphthous stomatitis is perhaps the commonest mouth lesion seen and the most puzzling with regard to etiology. A careful study of the history frequently reveals that these lesions begin after an acute emotional upset. They occur more frequently in women during pregnancy and menstruation, and some varieties are associated with functional gastric symptoms. The mouth lesion itself suggests vasospasm or minute infarction of the area of mucosa involved.

Pemphigus almost always produces mouth lesions. Several acute and chronic varieties have been described. The etiology of pemphigus is unknown. One variety is probably a variant of erythema multiforme. The possible association between pemphigus and stress has not been carefully investigated. Steroid therapy has been the only medication of any real benefit in pemphigus.

Recommended Treatment.—What can be done for all these psychosomatic problems? In general, little may be expected from psychiatric care. One must be careful not to overdiagnose by calling the patient's attention to minor anatomic variations which then become a fixation. One must be careful not to overtreat, as these patients frequently request oral surgery or dental extraction because of their mental distress. Perhaps the most important therapy is a careful taking of the history, listening to the patient, and giving him an opportunity to discuss freely his local difficulty and sometimes any general problem. Careful examination and then adequate explanation of the nature of the process is a necessary part of successful therapy. This can be supplemented to advantage in some instances by sedation, tranquilization, or mild topical therapy. By these means, a problem patient may frequently be converted to a grateful one.

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AMERICAN UROLOGY'S OBLIGATION TO THE WORLD

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It is agreed that the scientific knowledge of urology accumulated in this country should be shared with other countries by giving urologic training to foreign medical graduates. This can be done either by training foreign students in this country or by enabling American urologists to visit other countries to give courses there. Each plan has its advantages, and much depends on the teacher.

The United States has become the leader of the free world. We can no longer be isolated and self-contained. Our prosperity depends to a large extent on the prosperity of other countries. We must share our scientific knowledge and industrial know-how with the people of other nations if we ourselves are to progress and prosper. This concept includes the sharing of our knowledge in every field of endeavor.[1] We, as physicians and as urologists, are obligated, under this concept, to do what we can to improve the standard of the practice of medicine in other countries where scientific advancement has not been as rapid as it has been in the United States.

American medical men are doing their share to help other countries. During 1956-1957, 6,741 physicians from 88 countries were in training in United States hospitals; residents numbered 4,753 and interns 1,988. During the same period 81 physicians from American medical schools were abroad teaching in foreign institutions.[2] During 1957-1958 there were reported to be 142 foreign physicians training in urology in the United States.[3]

In order to obtain the opinion of urologists who might have the opportunity of giving urologic training to foreign medical graduates, a short questionnaire was sent to each of the chiefs of urology services which are approved for giving residencies.[4] One hundred ninety-eight questionnaires were sent out and 153 were answered and returned.

There were 142 in favor of and 7 against giving urologic training to foreign medical graduates; 3 did not answer the question. Ninety-nine chiefs of services who were giving this training reported that a total of approximately 450 foreign doctors had been given nine months or more of urologic training in their institutions. These data show, I believe, that the majority of American urologists are aware of our national obligation to the countries who are less fortunate than we. Most of those who are in a position to do so are accepting this obligation. In addition to this training in the United States, American

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urologists have made 90 trips to foreign countries to help give urologic training to foreign graduates in their native land.

The language difference is sometimes a barrier to giving training to foreign doctors. English is, however, the most universal language and medical courses are taught in English in most of the countries of the Middle East, from the Mediterranean to the borders of China, and also in the Philippines. There is very little language difficulty with students coming from these countries or with teachers going to them. However, many desirable trainees from the Latin American countries and from Japan and Free China cannot be accepted here because they do not know English; and urologists going to them are limited in their activities unless they know their language.

For practical application it is more feasible to give urologic training to foreign graduates here in the United States than for American urologists to go abroad to train them. This was the opinion of 110 of the chiefs of services who answered this question. Thirty-five thought it was more practical to give the training to the foreign graduates in their own country. Seven had no opinion or thought both methods were practical.

It is less disturbing to us to give urologic training to a foreign medical graduate here than for one of us to go to another country for a year or two. The foreign graduate who has had adequate basic training and has sufficient knowledge of English to talk to patients and to understand lectures and conferences can usually fit into the training program nicely. Some of them, however, have had inadequate medical education in their own country and require more basic training here during their residency than do the other residents on the service. When they are deficient in their medical knowledge and/or in their knowledge of English, they cannot carry their share of the load of work and are unable to accept responsibility. These situations are more or less disrupting to the training program. Some have difficulty obtaining registration in the state where they are to take their residency.[5]

A facility to screen foreign medical graduates for internships and residencies in the United States has recently started to function. The Educational Council for Foreign Medical Graduates[6] is sponsored by the American Hospital Association, the Association of American Medical Colleges, the American Medical Association, and the Federation of State Medical Boards of the United States. Dean F. Smiley, formerly secretary of the Association of American Medical Colleges, is executive director. This facility gives examinations to foreign medical graduates and checks their credentials. Foreign applicants obtain certification from the facility on the following qualifications: 1. Their education has met minimal standards (18 years of formal education, including at least 4 years in a bona fide medical school). 2. Their command of English has been tested and found adequate for advanced training in an American hospital. 3. Their general knowledge of medicine as evidenced by passing the American Medical Qualification Examination is adequate for assuming an internship in an American hospital. Chiefs of services and hospitals can eliminate most of the undesirable foreign applicants by requiring certification by this facility.

Foreign medical graduates who come to America to learn to be urologists receive a more thorough training here in most instances than they would from an American urologist going to the foreign country. The excellent equipment, the number of faculty personnel, and the opportunities for research here all facilitate the giving of a thorough training. The results of the questionnaire on this point were that 137 thought more thorough training could be given in the United States, 4 had the opposite opinion, and 7 had none.

Urology in Other Countries

Are foreign medical graduates able to establish urology on a sound basis in their own land after they have finished their training here and have returned home? Of those who answered the questionnaire, 78 thought they could, 49 believed that it was preferable for American urologists to go abroad, and 15 had no opinion or thought the two were of equal benefit.

When the young urologist returns to his native city after having finished his training here, he is in most instances still considered a home town boy. Most of the senior surgeons knew him when he was born and are not likely to consider his opinions of very great value. It is often difficult for him to get enough cases from the general surgeons or others who have always had them. His requests for equipment are often ignored or considered lightly, and his efforts to organize a department or to improve one which is already established may be of no avail. Conversely, when a qualified American urologist goes to a foreign institution to train urologists there, he is recognized as an authority by the administration and by other staff members. His plans will usually be accepted and his requests granted. His influence carries weight. He can establish the specialty on a sound basis more rapidly than a young national who has come back home. If the men he is training there are able and intelligent, the training program will continue to progress after he leaves.

Were it possible for a large number of qualified American urologists to go to a foreign institution to give training, a large number of foreign medical graduates could obviously be trained. Approximately 90 trips to foreign countries were made by those who answered the questionnaire or by someone else in the department for the purpose of training urologists there. Most of these were short lecture tours; a few were for a longer time. The short visits are beneficial to the training program in the foreign country, but a longer stay of a year or more can accomplish a great deal more. Even then, however, it is not possible to have more than six or eight trainees at a time, even in the large centers where there are abundant clinical facilities. Therefore, it would take a long period of time and many American urologists to train in their own country the 450 or more foreign medical graduates who have been trained in this country.

It was the opinion of 61 of those who answered the questionnaire that the largest number of foreign doctors could be given training in this country, 70 believed that more could be trained by American urologists going to the foreign country, and 22 had no opinion. It is probable that many were of the opinion that the majority of those trained in this country either remained here or came back later. The result of the questionnaire was, however, surprising in this regard. Of the 450 foreign doctors who were given urologic training here, 296, or 65%, were reported as having returned to their country and remained there or were still in training here and were planning to go back. The chief objective of giving urologic training to foreign doctors is to advance the specialty of urology in their own country. There are many attractions in this country, however, which make it desirable for them to remain here. Some of the best men are offered positions in our own institutions. Many are attracted so much by our way of life that they do not want to live again in their own country.[7] One of the urologists who answered the questionnaire wrote "we can do a lot of good toward better relations with our neighbor countries. The number who want to stay here is really a compliment to our country." This attitude is, in my opinion, typical of the unselfish American who is proud of his country and is glad that those from foreign lands like it so well that they want to remain here. Even though approximately 35% of the graduates of foreign medical colleges who receive urologic training here remain in this country after completion of their training, enough go back to make it well worth while to train them. A law (public law 555) enacted in 1956 may help to ensure that these physicians return to and remain in their native country.[8]

I spent last year in India at the Christian Medical College in Vellore as a Fulbright exchange professor.[9] I was able to complete the urologic training of a very competent national surgeon and to start a training program which will, I am sure, continue. It is now the only place in all of southern Asia where urologic training is given. However, the absence of a professor or of a chief of service from his department here at home for a year or two may present a number of problems. There may be no one capable of carrying on his work either in the department of the medical college or hospital or in his private practice. He may be so involved financially he could not meet his obligations with the reduced income which usually accompanies service abroad. His family may be unwilling or unable to go to a foreign country.

A sojourn of a year or more teaching in a foreign country is rewarding in many ways. There is satisfaction of accomplishment, a need is filled, a training program is established, or a department which has already been started is upgraded. The American teacher who goes abroad to train nationals is one of the best emissaries of good will from this country. A change of environment is helpful to the individual who makes the sojourn. His absence from his department may even be of benefit to it by stimulating others to take more responsibility. Sometimes we think we are indispensable; our absence for a year or more may change this concept. While we are away, many responsibilities are assumed by others who may be more capable than we of handling them. When a man has been in one position for many years, it broadens his viewpoint, disrupts many of his fixed habits, and develops patience and tolerance to be in a different environment which is not as smooth running and efficient as his department at home.

There is adventure in an assignment to a teaching position in a foreign institution. The country and the people and the customs are new and different to him. A man can enjoy his travels and at the same time have the satisfaction of accomplishing something worthwhile. When he has finished his assignment, the gratitude of those whom he has gone to help will in itself far outweigh any inconveniences and hardships he has encountered.

The man who accepts a teaching assignment in a foreign institution must be adaptable; he must be resourceful; and he must have patience and persistence. It is necessary for him at first to tolerate customs and habits which, to his mind, are inefficient and cumbersome. Then by resourcefulness and by patience and persistence he endeavors to make the changes which are most necessary to upgrade the department. A man who cannot be content with anything less than perfection would be frustrated. Perfection is a goal to work toward but is often not obtainable in most foreign institutions. The man who cannot work unless supplies, equipment, and personnel are nearly perfect would be unable to tolerate any more than a lecture tour in these environs.

Summary

American medicine has accepted its portion of the obligation to share our scientific knowledge with other countries. Leading urologists here agreed 142 to 7 that we should give urologic training to foreign

medical graduates. Approximately 450 had been or were being trained in the United States; approximately 90 trips have been made to foreign countries by American urologists for the purpose of giving urologic training abroad. The advantages of giving training in the United States are that it is more practical, more thorough training can be given under the present circumstances, a larger number can be trained here, and foreign graduates who desire graduate training here can now be screened by the Educational Council for Foreign Medical Graduates. The advantages of giving training to foreign graduates in their own country are that it establishes urology on a firmer basis in their country and it is stimulating, interesting, and satisfying to the teacher. Medical men who are not adaptable, who are extreme perfectionists, and who do not have patience and persistence would not enjoy foreign service for more than a few weeks.

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MINIATURE R-WAVE CARDIAC MONITOR

EARLY DETECTION OF CARDIAC ARREST DURING SURGICAL OR ANESTHETIZATION PROCEDURES

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An estimated 5,000 deaths occur yearly because of cardiac arrest during surgical or anesthetization procedures, and it is obvious that a significant void exists in our armamentarium which urgently requires some attention.[1] Resuscitation procedures on the heart are both possible and consistently successful if instituted literally within seconds of the time of actual arrest. It is generally agreed that success depends in large measure on immediate diagnosis and decisive action.[2]

When one is confronted during operation with a sudden fall in blood pressure and peripheral circulatory collapse to the extent that no heart sound or pulses are obtainable, one very important question must be answered without delay: is this shock, with the patient's heart beating imperceptibly, or has cardiac arrest or ventricular fibrillation occurred? The use of blood, fluids, or vasopressor agents in such a situation will eventually assure one of the diagnosis, but if the condition is the result of cardiac arrest the opportunity for successful resuscitation may be lost. The specific purpose of a cardiac monitor is to give some warning of impending disaster and to aid in making an immediate diagnosis once arrest or fibrillation has occurred. Such a device is intended to assist the anesthesiologist, not to supplant him or convert his specialty to automation. Careful observation of the peripheral pulses, the blood pressure, skin, mucous membranes, and auscultatory findings are time-

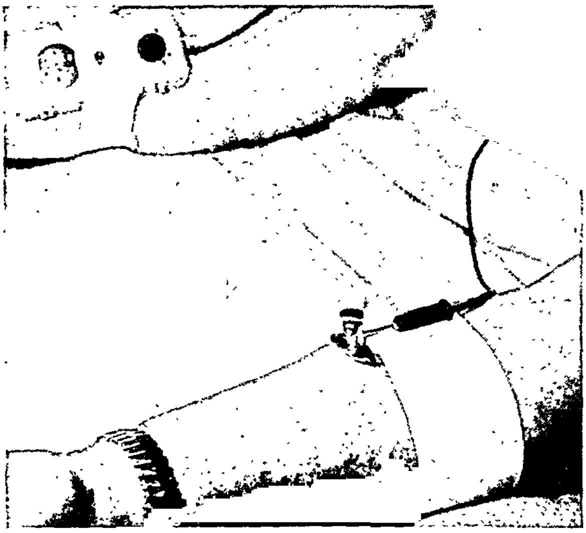
The specific purpose of a cardiac monitor is to give some warning of impending disaster and to aid in making an immediate diagnosis once arrest or fibrillation has occurred. Such a device is intended to assist the anesthesiologist, not to supplant him or convert his specialty to automation. A miniature cardiac monitor that can be affixed to the patient has been developed to fulfill the need for a small, rugged, reliable, and relatively inexpensive instrument suitable for mass coverage. Plug and jack-type connections have been avoided to minimize faulty electric contact and resulting "false alarms." The audible "beep" enlists the attention of the entire operating room team but frees their eyes and hands for other duties.

From the Department of Surgery, Grace Hospital.

honored and reliable indexes of cardiac function. The physician's perceptive abilities and his clinical judgment cannot be replaced by electromechanical robots, but in certain situations, such as cardiac arrest, his decisions can be made more quickly.

Nature and Function of Cardiac Monitors

Currently available cardiac monitors depend on a variety of secondary manifestations of cardiac activity for their activating signal. Some monitor the peripheral pulses or the blood pressure, others rely on amplified heart sounds, and some monitor the electric potentials of the heart. Since a knowledge of the electric activity of the myocardium is our most accurate index of its action, short of direct observation, and since monitoring of the electric potentials is both possible and practical, other forms of monitors which depend on peripheral circulation or on heart sounds are at best only poor substitutes for the anesthesiologist and the stethoscope and sphygmomanometer which he has used for years.


Miniature cardiac monitor, showing right and left forearm electrode connections.

Instruments now available which technically are excellent monitors leave much to be desired with regard to practicability. Many require the undivided visual attention of the anesthesiologist or of a cardiologist, and complex control systems require adjustment by someone familiar with the operation of complicated electronic apparatus. They are generally large in size, have high-voltage circuits for cathode-ray tube displays, delicate meters, and long connecting wires for one to trip over, and are susceptible to damage from incorrect or rough usage. High initial cost and maintenance add to the big question of practicability, especially when one envisions the use of any of the currently available monitors on a large scale. Since the occurrence of cardiac arrest or ventricular fibrillation is quite unpredictable, monitoring should be done in all patients undergoing surgical or anesthetization procedures from the time they leave their beds for the operating room until they have reacted in the postoperative recovery room. The desirability of monitoring the critically ill patient and the patient with coronary disease could also be considered. A 400-bed hospital should probably have 40 monitors available (10% of the general hospital beds). For most hospitals the storage of a number of the larger sized units would be impossible.

The Miniature Cardiac Monitor

A miniature cardiac monitor has been developed to fulfill the need for a small, rugged, reliable, and relatively inexpensive instrument suitable for mass coverage. It is a completely self-contained unit which weighs less than 6 oz., including battery power supply and a high-gain transistor amplifier. The metal case is designed for mounting the unit directly on the body and serves as one electrode. A small external lead wire is permanently fixed to the amplifier and to a second electrode. Plug and jack-type connections have been avoided to minimize faulty electric contact and resulting "false alarms."

Although the right and left forearm electrode connections are commonly used, any standard two-lead electrocardiographic configuration may be used, depending on the surgical requirements.

Mounting the entire instrument on the patient (see figure) allows freedom of movement, decreases the number of lead wires to one, and protects the monitor from accidental damage which is prone to occur with distantly placed units having several long connection leads.

A single manual control for sensitivity selection is all that is needed to "tune" the instrument. Adjustment of the sensitivity may produce audible combinations of the electrocardiographic complex in whole or in part, but the usual desired signal is a clear, loud "beep" tone occurring with each R wave. A pressure-activated microswitch turns the monitor on when it is fixed to the patient and conserves batteries by automatically turning it off when it is removed.

Operation and control has been so simplified that, in many cases, by the mere application of the instrument a satisfactory signal will result without further adjustment. The audible "beep" enlists the attention of the entire operating room team but frees their eyes and hands for other duties. The constant attention required by visual indicators, such as meters, lights, or the cathode-ray tube displays, is thus eliminated.

Where it is desirable to use the monitor away from the body, as in surgery on infants, provision is made for an alternate electrode lead. The amplified signal is made available through another connection for activating an external light or meter indicator, such as would be required in the recovery room or when the monitor is used in the hospital wards.

Protection of the amplifier circuit, including the transistors, from moisture and corrosion is obtained by embedding the unit in plastic resin. This also makes the monitor extremely resistant to the hazards of accidental dropping or rough usage. The design lends itself to the advantages of mass production, and it is anticipated that such an instrument will soon be commercially available at a moderate price.

Conclusions

The purpose of a cardiac monitor is to assist the anesthesiologist by giving warning of impending disaster and by aiding in the establishment of an immediate diagnosis. Small, reliable, rugged, and easy to operate and maintain, a miniature cardiac monitor, with its reassuring "beep," could become as commonplace as the stethoscope in the operating room.

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TWO YEARS' EXPERIENCE WITH CHEMOPALLIDECTOMY

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Fifty-three patients underwent chemopallidectomy as treatment for dystonias believed to originate in the basal ganglions. In 43 the symptoms were those of Parkinsonism. The procedure consisted in passing a catheter through an incision and bur hole just superior to the zygomatic process of the temporal bone. The catheter was timed directly at the roof of the third ventricle and advanced until its tip would deliver injected materials (ethylcellulose and ethyl alcohol) 1.5 cm. lateral to the wall of the third ventricle. Two components of Parkinsonism were considerably reduced by the operation, namely the plastic rigidity and the pill-rolling tremor. But the patients could be easily identified as having Parkinsonism after operation, and none of them reestablished a wholly normal synergistic motor pattern. Patients with congenital athetosis and spasmodic torticollis were not helped, but good results were obtained in two with dystonia musculorum deformans and three with acquired choreiform movements.

Operative destruction of the region of the globus pallidus has been under consideration for treatment of basal ganglion disorders for approximately two decades. There have been many methods devised for the creation of the surgical defect. For a variety of reasons, including technical difficulties and high operative mortality, none of the methods advocated were widely adapted until the introduction of Cooper's method of chemopallidectomy.[1] Meyers has attempted the transventricular operative destruction, and more recently [2] he advocated the use of ultrasound localized by stereotaxic methods. Spiegel and Wycis [3] have used electrocoagulation lesions which have been stereotaxically placed in the region of the ansa lenticularis. Narabayashi and others [4] injected procaine in oil for blocking of the medial globus pallidus. The area of injection was located by stereotaxic methods. Fenelon and Thiebaut [5] attempted unilateral striopallidal intervention by use of leukotomes.

Cooper created lesions which were acceptable to him by infarction attending surgical occlusion of the anterior choroidal artery. More recently [1] he has advocated a method of destruction by the injection of alcohol or alcohol-containing vehicles in the region of the medial globus pallidus, as well as the thalamus. He has named this procedure a chemopallidectomy. Cooper's method has been the technique most widely accepted. This method, with personal modifications, has been used in 52 separate procedures for dystonia of basal ganglion origin. Forty-three of these have been for Parkinsonism;

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two for dystonia musculorum deformans; three for choreiform movements; one for spasmodic torticollis; and three for congenital athetosis. The patients on whom these procedures were performed were followed up from 3 to 22 months.

Methods

The surgical technique used in these procedures is that described by Cooper[1] as the temporal approach for chemopallidectomy. Some personal modifications which seemed appropriate have been made. In Cooper's method pneumoencephalography is utilized to visualize the structures that are landmarks for implantation of a balloon polyethylene cannula in the region of the medial globus pallidus. For accurate placement, it is necessary that the pneumoencephalogram adequately delineate the roof of the third ventricle and the interventricular foramen (foramen of Monro). In Cooper's method 30-40 cc. of air is introduced via the lumbar route with the patient under local anesthesia.

Fourteen of the procedures in this series were done by this technique. The last 38 were done with the patient under general endotracheal anesthesia, and complete pneumoencephalography was done. In this series, an attempt was made to introduce air by ventriculography and cisternal puncture, but these procedures were abandoned in favor of the lumbar route because of inadequate filling and greater potential dangers with use of these methods. The polyethylene cannula was introduced through a small incision and a bur hole just superior to the zygomatic process of the temporal bone. In the medial direction it was aimed directly at the roof of the third ventricle and advanced until its tip was in position to deliver injected materials 1.5 cm. lateral to the wall of the third ventricle. The anteroposterior placement of the needle was 3-5 mm. posterior to the posterior lip of the intraventricular foramen. The catheter was sutured firmly to the scalp and kept in place two to three weeks. The material injected contained ethyl cellulose, 8%, and ethyl alcohol (Etopalin), 92%. Three to five injections of 0.75 cc. were made during a 15-day period. The first injection was done at operation if local anesthesia was used. If general anesthesia was used, the first injection was delayed until the patient had recovered from pneumoencephalography and general anesthesia. The position of the cannula was checked by x-ray prior to each injection. It was further checked prior to the first injection by the instillation of 0.5 cc. of 1% solution of procaine hydrochloride. If the catheter was the type which contains a small balloon at its tip, the balloon was inflated at the time of injection as a means of estimating what the effect of the alcohol will be, as well as a method of localizing the alcohol in one area. Should either of these methods fail to produce the anticipated improvement in symptoms, the position of the catheter may be changed by either advancing or retracting the tip.

The operation is first done on one side, and two to four months later it is repeated on the contralateral side. The procedure is done with the patient in the upright position. A portable x-ray machine is kept in the operating room, and frequent anteroposterior and lateral x-rays are taken throughout the procedure for accurate placement of the catheter.

In this study it was felt that general anesthesia is preferable for the procedure, as it has considerably reduced the trauma to both the patient and the surgeon. This makes possible full pneumoencephalography and more accurate delineation of the cranial landmarks. Operating time for the procedure was one to one and one-half hours. There were no wound infections in this series.

Selection of Patients

In this series of procedures there has been a change in the requirements for operability in Parkinsonism. During the first 10 procedures, the requirements were that medical treatment had been a total failure. This usually meant that the patient was bedfast, or nearly so, and unable to feed or dress himself. It soon became evident that this procedure is potentially lethal in elderly debilitated patients, as many of these patients were. This combination of age and debilitation led directly to the two fatalities which occurred during the first 10 procedures. In addition, five major fractures occurred after minimal trauma in patients who were made ambulant after having been bedfast for prolonged intervals.

It is presently recommended that the procedure should be done when the patient loses social compensation. An intense attempt at medical management is first made. If the patient is unable to maintain employment or requires help in feeding or dressing, I feel that the procedure is indicated. Experience with patients with far-advanced arteriosclerosis, periarticular fibrosis, and age greater than 65 years has been disappointing. Therefore, these factors are considered to be contraindications for the procedure. Far-advanced impairment of vocalization and swallowing also contraindicates the procedure, as these components of the syndrome are not improved by it and may, in fact, be made temporarily worse.

Results

Only two components of Parkinsonism are improved by chemopallidectomy. These are plastic rigidity and pill-rolling tremor. The symptoms secondary to plastic rigidity, such as muscle cramps, bradykinesia, easy fatigability, and retropulsion, are all improved proportionately to the reduction in rigidity. The pill-rilling tremor is reduced, but not as consistently as the rigidity. This has not been a great disadvantage to the operative procedure, since the most disabling component of the syndrome is the rigidity.

It is of interest to note that in many patients with bilateral disease who have had a unilateral operation there has been a continued and unchanged progression of the disease on the ipsilateral or unoperated side. No postoperative progression of symptomatology on the contralateral or operated side has been noted.

The bulbar components of the syndrome, which were made worse by surgery, all returned to the preoperative level, only to have progression in impairment at what appears to be the preoperative rate. This was noted in 10 patients. Flapping, pendular tremors were made worse in two patients. Two patients had spontaneous outbursts of laughing or crying which were unrelated to a feeling of sadness, and these were unchanged by the operative procedure. There have been no epileptic seizures in this series of patients.

It should be pointed out that these patients all had moderate to severe disease prior to operation, and none were made completely well by the procedure. There was considerable reduction of rigidity and tremor, to a point near 100%. Despite the reduction, the patients could easily be identified as having Parkinsonism after operation, and none of them reestablished what could be considered the normal synergistic motor pattern. For this reason, it was elected to classify the patients into the following categories: (1) 75% or more reduction in symptoms, (2) 50% reduction, (3) 25% or less reduction, and (4) no improvement at all.

Forty-three procedures were done for Parkinsonism. There were two deaths, one hemiplegia, and seven total failures insofar as relief of tremor and rigidity is concerned. Mortality for the entire series was 4%. The total failure rate with the procedure was 23%. One death was from staphylococcic pneumonia resistant to antibiotics, and the second death was from overhydration and pulmonary edema. Both deaths and three of the failures occurred in the 14 patients operated on under local anesthesia. The one hemiplegia and four other failures occurred in the 29 patients operated on under general anesthesia. Two of the last four failures occurred in patients whose disease was far-advanced and who probably should not have been subjected to the procedure. However, in this disease the surgeon frequently finds that insistence on operation by patients and pressure by the attending physician are apt to make for selection of patients who are not ideal for surgical treatment.

In those patients surviving the procedure, it was the impression that 70% had 75% reduction in rigidity; 10% had 50% reduction; and 1% had 25% reduction or less. The improvement in tremor was less impressive. Forty-eight per cent of the patients had 75% or more reduction; 16% had 50% reduction; 2.5% had 25% reduction; and 33.5% had no reduction in pill-rolling tremor. In properly selected patients, it seems likely that 90% of those operated on should have an impressive reduction in rigidity and approximately 65% should have a satisfactory reduction in tremor. Therefore, I would not hesitate to recommend this procedure to a patient whose principal impairment was plastic rigidity and in whom age and debilitation did not contraindicate the procedure.

Two procedures were done for dystonia musculorum deformans, with nearly complete reduction of the athetoid movements. One of these patients was nearly bedfast in the preoperative period. He recently passed his examination and received a driver's license in the state of Oregon. Three procedures were done for lifelong, nonprogressive athetoid movements. None of these patients were improved. One patient had a chemopallidectomy on the left side for spasmodic torticollis on the right. He was not benefited. Three patients had chemopallidectomy for acquired choreiform movements. All were greatly improved.

Summary

Fifty-three patients were subjected to chemopallidectomy for dystonia of basal ganglion origin; there was a 4% mortality and a 2% hemiplegia rate. The procedure afforded considerable reduction in plastic rigidity and tremor of Parkinsonism. The other components of the syndrome were not improved.

Good results were obtained in the treatment of dystonia musculorum deformans and acquired choreiform movements. The procedure was of no value in congenital athetosis and spasmodic torticollis.

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The ethyl cellulose and ethyl alcohol injection material used in this study was supplied as Etopalin through Dr. Frank A. Travis of Ciba Pharmaceutical Products, Inc., Summit, N. J.

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SUBCAPSULAR NEPHRECTOMY

COMPARISON OF FIFTY-THREE CASES WITH THREE HUNDRED EIGHTY-FIVE CLASSIC NEPHRECTOMIES

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Subcapsular nephrectomy has advantages over classic nephrectomy in certain types of renal pathology. During performance of classic nephrectomy, a number of accidents can occur. These include injuries to the vena cava or duodenum on the right side, to the stomach, spleen, or aorta on the left side, and on either side to the colon or small intestines, diaphragm, pleura, pancreas, adrenal glands, or renal pedicle. However, in subcapsular nephrectomy the thickened capsule is left attached to the peritoneum or diaphragm, and this affords protection to the contents of the chest and abdominal cavities. Because it requires less time to perform subcapsular nephrectomy than classic nephrectomy, the subcapsular approach is particularly indicated in patients considered poor surgical risks, in whom the pathological condition of the kidney would render a classic nephrectomy tedious and difficult.

In 1949, 34 cases of subcapsular nephrectomy were compared with 100 cases of classic nephrectomy performed by members of the department of urology at the Ochsner Clinic.[1] This study suggested that in indicated cases the subcapsular approach has certain advantages over the classic operation. Since that report subcapsular nephrectomy has been performed on 19 additional patients. It is the purpose of this paper to compare these 53 cases with the 385 classic nephrectomies performed during the same period to determine if the same impression still prevails.

The subcapsular method of removal of the kidney has been employed for more than half a century. Mayo[2] saw the operation performed in Tuffier's Clinic in Paris in 1900. Fourteen years later he saw Federoff perform the same operation in Petrograd by a slightly different technique.[3] Joly[4] credited Albarran with being the first to describe a method of isolating the ureter in subcapsular nephrectomy. In 1942 Lazarus[5] suggested a method for protecting the diaphragm in difficult nephrectomies which probably represented a partial subcapsular nephrectomy.

Kimbrough and Morse[6] recently emphasized the indications of subcapsular nephrectomy. This method is indicated particularly in two groups of patients. The first includes patients with chronically infected kidneys in which severe perinephritis has developed with resultant fixation to adjacent structures. In 46 of our 53 patients having subcapsular nephrectomy, the diagnosis was calculous pyonephrosis or infected hydronephrosis. The second group consists of patients who have had previous renal surgical procedures.[7] Forty per cent of our 53 patients having subcapsular nephrectomy had had previous renal operations, as constrasted with only 4% of our patients having classic nephrectomy. In these two groups of cases subcapsular nephrectomy not only is technically easier to accomplish but also affords protection to surrounding structures.

During performance of classic nephrectomy, a number of accidents can occur. These include injuries to the vena cava[8] or duodenum[9] on the right side, to the stomach, spleen, or aorta on the left side, and on either side to the colon or small intestines, diaphragm, pleura, pancreas,[10] adrenal glands, or renal pedicle. However, in subcapsular nephrectomy the thickened capsule is left attached to the peritoneum or diaphragm and this affords protection to the contents of the chest and abdominal cavities. Subcapsular nephrectomy is, of course, contraindicated in patients with renal tuberculosis or neoplasms because in such cases all involved tissue must be removed.

The technique of subcapsular nephrectomy used by us is as follows: The same lumbar Mayo incision as is used for classic nephrectomy is made. The renal fascia (Gerota's fascia) is opened as far posteriorly as possible and the kidney is exposed. If additional exposure is needed, the last rib is resected. The convex border of the kidney is exposed; no attempt is made to mobilize the entire kidney. Along the convex border an incision is made through the inflammatory capsule and the true capsule down to the renal cortex. With a finger the kidney is shelled out of its capsule down to the hilum. The capsule is circumcized around the renal

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pedicle as completely as possible with a knife in order to free the pedicle for accurate ligature, after which two clamps are applied to the pedicle. The kidney is excised, care being taken to leave a temporary cuff of tissue distal to the more superficial clamp to guard against slipping of the pedicle through the clamps. After the pedicle has been secured, this excess tissue is trimmed off. The pedicle is ligated with multiple transfixion sutures of absorbable chromic surgical suture. If feasible the ureter is isolated and divided in the usual manner; otherwise, it is left alone. Sometimes it may be necessary to decapsulate only that portion of the kidney adherent to the diaphragm or peritoneum with complete extracapsular dissection of the remaining surfaces. This reduces the amount of inflammatory tissue left in the wound. Sometimes oozing from the inner surface of the remaining capsule will require packing of the wound for 48 hours. Otherwise a simple Penrose drain is used. The wound is then closed in the usual manner.

Comparison of Results

In general, the patients in our series having subcapsular nephrectomy were poorer surgical risks than those having classic nephrectomy. Thus, 38% of our patients having subcapsular nephrectomy were poor surgical risks as contrasted with only 4% of those having nephrectomy. In these patients who are poor surgical risks the subcapsular approach is usually preferable to the classic because it requires, on an average, less time than the classic operation. The average time required for performance of subcapsular nephrectomy in our series was 70 minutes, whereas for the classic technique it was 81 minutes. However, patients usually stay in the hospital a little longer after subcapsular than after classic nephrectomy. Our patients had to remain in the hospital after subcapsular nephrectomy on an average of three days longer than those having classic nephrectomy. Thus, the average duration of hospitalization in the subcapsular group was 15 days and in the classic group 12 days. The maximum duration of postoperative hospitalization for the subcapsular group was 32 days and the minimum 7 days, whereas for the classic group these figures were 47 and 6 days respectively.

Persistent drainage of the wound complicated both types of nephrectomy, but the average duration of wound drainage for the subcapsular group was considerably longer than for the classic group, being 37 days and 16 days respectively. The maximum duration of wound drainage in the subcapsular series was 153 days as contrasted with 113 days for the classic cases. Persistent purulent drainage from the wound after subcapsular nephrectomy may be due to retained infected elements, usually part of the inflammatory capsule, which will necessitate reopening the wound at a later date to remove this tissue. One patient whose wound drained for 153 days after subcapsular nephrectomy later required a second operation for removal of a calculus in the renal pelvis that had been deliberately undisturbed. However, one patient whose wound drained for 113 days after classic nephrectomy also required removal of infected tissue before the wound completely healed. The only other complication in both series was a colic fistula that developed in a patient having classic nephrectomy for extensive renal neoplasm.

The mortality for subcapsular nephrectomy was somewhat higher than for the classic cases, the incidences being 5.7 and 0.8% respectively. However, it must be remembered that the three deaths associated with subcapsular nephrectomy occurred among only 53 cases, whereas the three deaths after the classic operation occurred among 385 cases, so that it would be unfair to compare these percentages. Also, all three deaths in the subcapsular group were in elderly women. One, aged 76, died of a cerebral hemorrhage on the 17th postoperative day after an uneventful postoperative course up to that day. The second woman, aged 74, died of a septic pulmonary infarct on the 62nd postoperative day. The third patient, with myelosclerosis and advanced calculous pyonephrosis, died of postoperative collapse. Two of the three deaths in the classic group were due to pulmonary emboli, and the third was due to uremia.

Summary

Comparison of 53 cases of subcapsular nephrectomy with 385 classic nephrectomies performed during the same period by members of the department of urology at the Ochsner Clinic indicates that in two groups of cases subcapsular nephrectomy has certain advantages over classic nephrectomy. The first includes patients with chronically infected kidneys in which severe perinephritis has developed with resultant fixation to adjacent structures and the second consists of patients who have had previous operations on the kidney. Because it requires less time to perform subcapsular nephrectomy than classic nephrectomy, the subcapsular approach is particularly indicated in patients considered poor surgical risks.

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CLINICAL NOTES

NEW BANDAGE SCISSORS

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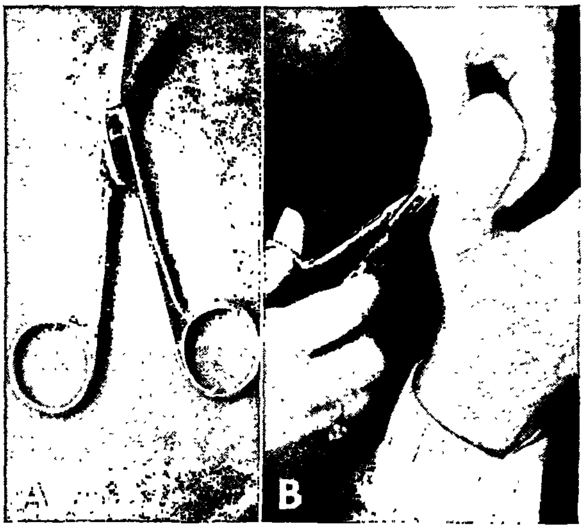
It has been an accepted fact for many years that bandages and tape can be safely cut away from the patient's skin only with scissors that have the point of the lower blade protected by a large acorn-shaped metal protuberance. The scissors work quite nicely when the bandage is loose; however, when a tight bandage, such as a snugly wrapped finger-bandage, is to be removed, it is a painful process to push the acorn tip between a crushed finger and its bandage. It reminds one of an ancient method of torture in which wedges were pounded beneath wrist gyves to crush the wrists.

Early in 1956, I began using the type of scissors pictured in the figure (*A*). Note that there is no acorn on the tip of the lower blade. Instead, the blade comes to a smooth, rounded point which is only slightly longer than that of the upper blade. This fact enables one to cut with the full length of both blades. The acorn-tipped scissors, on the other hand, had to be pushed far under the bandage, and cutting could be accomplished only up to within ⅜ to ½ in. of the end of the lower blade.

Another advantage of these scissors is the indentation in each limb of the handle (see figure *A*). This facilitates grasping the hub of any needle on a syringe for easy removal of the needle.

Note in the figure (*B*) that the lower blade slips easily beneath the tightest bandage. This makes for painless bandage removal for the patient and convenience for the surgeon. For two years I have used the scissors on all dressings anywhere on the body and have found that, besides slipping easily and painlessly beneath tight bandages, their short cutting action easily goes through the toughest dressings without binding. The newly designed point of the lower blade does not catch in the skin or in the dressing.



New bandage scissors: *A*, lower blade point is smooth and rounded instead of acorn-shaped, and scissors has squared indentation in each handle proximal to fulcrum to grasp needle hub. *B*, blade slips easily and painlessly under tight bandage.

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WHERE ARE THE CASES OF RADIUM POISONING?

A PLEA FOR ASSISTANCE

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Is fall-out from atomic bombs dangerous to us or to our descendants? What will be the effect of 30 years' continuous exposure to strontium 90 and other radioactive materials? These questions have produced more speculations than facts. The answers may well be right in front of us if we would only look at them. We cannot afford to dally much longer. How many know that there are alive today a large number of persons who have been harboring radioactive substances within their systems for over 30 years, a full generation? These persons are generally referred to as having cases of radium poisoning—internal deposits of radium, mesothorium, radiothorium, thorium X, thorium dioxide, or any combination of these materials. Some painted watch dials, some drank "Radithor," and others had injections of radium chloride, a type of accepted therapy in 1927. Most doctors and laymen alike assume that these persons have all been dead for years. This is far from the case.

Need for Cases

While some were injured, we are reasonably certain that about 2,000 luminous dial painters from the early 1920's are still living, most of them in good health. There are probably several hundred who drank radium water or who had injections of radium salts during the period 1915-1930 who are still very much alive today, but, except for a few, we do not know who or where they are. The publicity created by the death of a few was partly responsible for the elimination of the dangers in the use of radium in more recent years.

In 1956, at the request of the Atomic Energy Commission, a committee met in Washington, D. C., to give further consideration to the problem of the biological response of man to continuous low doses of strontium 90. This committee recommended that the human radium exposure cases be restudied to see whether there was any correlation between the incidence of minimal bone changes and the incidence of bone tumors. A major problem in such a study is the finding of these radium poisoning cases of an earlier generation and making them available for study before the persons involved die from natural causes. Time is of the essence in this search. By examining human beings with 30 years' exposure to minute amounts of radiation (not laboratory animals with a few months' exposure), we can get a much clearer picture of what to expect 30 years from now.

A frustrating side of this problem is the near certainty that all the files and records of the early workers in radium have been destroyed by either accident or inadvertence. For example, the records of the investigation by the U. S. Department of Labor in 1929 were destroyed in 1944 as a routine measure. The U. S. Public Health Service reported on the hazards of the radium dial painting industry in 1933. All of the detailed information identifying personnel and plants using or producing luminous paints was lost in a flood in 1942. The files of individual investigators, such as those of the late Dr. Frederick B. Flinn of the Columbia University College of Physicians and Surgeons, have all been destroyed because their value was not recognized.

Before it is too late we must leave no stone unturned in our efforts to find and study every possible case. Doctors, nurses, and the medical records departments of hospitals, if aware of the need for finding cases of radium ingestion or injection, could be of inestimable value in locating these persons.

Radioactivity Center

In the belief that there is an urgent necessity for collecting and integrating this information and for keeping it intact, a central catalogue for recording all cases of chronic irradiation poisoning in human beings by certain internally deposited alpha emitters has been set up at the Radioactivity Center of the Massachusetts Institute of Technology. This is being done under the guidance of Prof. Robley D. Evans, with the medical supervision of myself. All available records in this field are now being microfilmed, and a punch-card system has been installed for recording data on persons with radium poisoning. This information will then be available in one location for future study and correlation of such items as the amount of internally deposited radioactivity, shortening of life span, susceptibility to other diseases, and incidence of bone changes and tumors.

The following investigators in the United States and Great Britain are collaborating with the Radioactivity Center at M. I. T. in this project: Dr. Robert J. Hasterlik of the Argonne Cancer Research Hospital, Dr. Austin M. Brues and Mr. L. D. Marinelli of Argonne National Laboratory, Mr. Lester A. Barrer of the New Jersey State Department of Health, and Prof. W. V. Mayneord of the Royal Cancer Hospital, London.

From the Radioactivity Center, Department of Physics, and the Department of Medicine, Massachusetts Institute of Technology.

Signs of Radium Poisoning

There are several conditions that should make one suspicious of radium poisoning if, as is often the case, the patient has long since forgotten his or her contact with radioactive substances. These are (1) spontaneous fractures without evidence of a neoplasm at the site of the fracture (often these patients have had repeated fractures before the etiology is discovered); (2) osteogenic sarcomas which may develop 25 or more years after exposure to radium; and (3) neoplasms of the paranasal sinuses, which may also appear many years after exposure to radium. The roentgenologist should be on the lookout for a generalized demineralization of the bones and the sclerotic appearance of the metaphysial ends of the long bones and of the skull due to multiple small infarcts. Many of the dial painters had unusual trouble with their teeth, losing them at an early age and having a long convalescence after extractions. Therefore, an edentulous female, 45 to 55 years of age, with a spontaneous fracture might well be questioned as to possible radium exposure in the past.

When to Report a Case

It is our hope that the doctor who has any knowledge or clue as to the whereabouts of any person, living or dead, who falls in the following categories will notify the Radioactivity Center, Massachusetts Institute of Technology, Cambridge 39, Mass., immediately. These categories are as follows: (1) persons who ingested radium compounds of any sort, either therapeutically or in the course of their occupation, e. g., dial painting; (2) persons who received parenteral injections of radium compounds for such conditions as arthritis, hypertension, and gout; and (3) persons who suffered exposure in the process of radium research or the manufacture of radium products, such as chemists, physicists, and laboratory assistants. (*It should be emphasized* at this time that we are not concerned with those persons who were exposed to x-rays or the application of radium in such forms as radon seeds.)

As these cases are registered, the Radioactivity Center will work in close cooperation with the physician listing them, and all contacts with these persons will be made only through the reporting physician. The specific nature of the studies, such as x-rays, body radium level estimates, and other laboratory procedures, will be decided after discussion of the particular circumstances of each individual case with the doctor. In some instances the Radioactivity Center may be able to finance all or part of these studies. In no case, however, will the existing doctor-patient relationship be jeopardized.

77 Massachusetts Ave. (39).

This work is supported in part by the Division of Biology and Medicine, U. S. Atomic Energy Commission.

COUNCIL ON DRUGS

Report to the Council

The Council has authorized publication of the following report. Nonproprietary terminology is used for all drugs that are mentioned; when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations.

H. D. Kautz, M.D., *Secretary.*

USE OF DRUGS IN SHOCK ACCOMPANYING MYOCARDIAL INFARCTION

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and
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Shock is one of the most dreaded sequels of acute myocardial infarction. Its mortality rate, estimated at about 80%, is approximately three to four times higher than the over-all mortality of acute myocardial infarction, as based on unselected series, and more than 20 times higher than some "good-risk" series. With arrhythmias and thromboembolic phenomena, it constitutes a triad of complications of myocardial infarction, the elimination of which would tremendously improve the prognosis of a single attack.

Within the past decade the therapeutic approach to shock accompanying myocardial infarction has changed from passive and symptomatic treatment to an active and vigorous use of drugs including blood volume expanders. The evaluation of such therapy and the establishment of a clear-cut policy are difficult for two reasons. In the first place, the

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causes and mechanism of this form of shock are not well understood. Secondly, the extreme seriousness of this condition precludes all but the simplest methods of objective circulatory studies. This report attempts to evaluate critically the present status of drug therapy of shock associated with acute myocardial infarction.

Nature of Shock Accompanying Myocardial Infarction

Shock may be defined as a clinical syndrome associated with a physiological state in which the circulating blood volume is disproportionately small for the size of the vascular bed. Shock thus arises when blood pressure necessary for the perfusion of important organs cannot be maintained. It is, therefore, a failure of the peripheral circulatory regulation system, and the abnormally low cardiac output characteristic of shock is ordinarily a phenomenon secondary to inadequate venous return to the heart. On the other hand, the heart may, under certain circumstances, become the principal cause of shock, in which case shock becomes primarily cardiac, or "cardiogenic" in origin. The concept of cardiogenic shock implies that the heart is incapable of maintaining adequate output for the sustenance of a reasonable blood pressure in spite of an adequate venous return.[1] There are two clinical syndromes in which this appears to be the case, pericardial tamponade and tachycardias with intolerably rapid ventricular rates. In both of these conditions the clinical picture of shock may appear, often accompanied by signs of congestive failure. In neither of these syndromes is failure of the myocardium present; in the one, a high intrapericardial pressure and, in the other, a short diastole interfere with diastolic filling of the heart and so produce critical fall in cardiac output. Massive myocardial infarction may destroy enough of the functioning myocardium as to produce sudden left ventricular failure severe enough to cause shock.

It would seem obvious that, in myocardial infarction, the peripheral factor and the cardiogenic factor may both be present and, in part, may be responsible for each other. Pain and tissue destruction in general, including myocardial infarction, are shock-producing factors by way of the peripheral mechanism. On the other hand, the inadequate coronary perfusion resulting from prolonged hypotension may bring about cardiac failure or even myocardial infarction. Shock complicating myocardial infarction could thus be considered to involve a vicious circle, wherein it would be impossible to determine the principal initiating mechanism.

The two opposing concepts of shock secondary to myocardial infarction are of considerable practical importance. If it is established that this form of shock is primarily neurogenic in origin, then the purpose of therapy would be to maintain or restore arterial pressure by the use of purely peripherally acting pressor drugs. If, on the other hand, this form of shock is entirely a manifestation of cardiac failure, then peripheral pressor effect would constitute an additional overload upon the already incompetent, overstretched heart and would be highly undesirable. In this case, drugs with cardiotonic effect would be helpful.

Both clinical and experimental studies have contributed little to the understanding of shock secondary to myocardial infarction. Circulatory measurements in even milder cases of myocardial infarction have demonstrated some elements of failure, such as lowered vital capacity, prolonged circulation time,[2] and increased venous pressure.[3] The cardiac output tends to be low in myocardial infarction,[4] with patients in shock showing, as a rule, lower values than those not in shock. These observations are, however, insufficient to establish cardiac failure as the primary cause of shock. Experimentally, cardiogenic shock has been reproduced by massive destruction of the myocardium [5] or by severe overloading of the right ventricle,[6] but shock can also be produced by peripheral mechanisms.[7]

Bedside observations in patients with acute myocardial infarction indicate that, if circulatory disturbances appear clinically in the course of acute myocardial infarction, they are likely to present themselves at first as pure cardiac failure (orthopnea, pulmonary edema, gallop rhythm, pulsus alternans, and congestive phenomena) or as pure shock (restlessness, cold perspiration, ashen cyanosis, tachycardia, and evidence of intense vasoconstriction). The combination of both syndromes is considerably less common than the appearance of either one alone; and a picture of severe cardiac failure associated with severe shock in a patient is usually a terminal event.

The variability in the clinical picture of shock presents the possibility that shock accompanying myocardial infarction may be caused by different mechanisms in different cases.[8] The following good arguments can be advanced against the theory that a single pathogenic factor causes shock in myocardial infarction: (1) the aforementioned variety of clinical patterns of shock secondary to myocardial infarction; (2) the occasional successful reversal of shock by the elimination of such diversified contributory factors as severe pain in some cases and cardiac arrhythmias in others; and (3) reports by careful observers of partial or complete relief of shock secondary to myocardial infarction by the use of agents having directly opposite actions upon the circulatory system, such as phlebotomy, on the one hand,[9] and blood transfusions, on the other,[10] or digitalis [11] and peripherally acting pressor amines.[12]

It was, therefore, suggested that the early shock which develops immediately after the initial attack may be of the nature of reflex vasomotor collapse, whereas the late shock, characterized by gradual onset and often accompanied by some evidence of cardiac failure, suggests cardiogenic mechanism.[8] Between these two "pure" forms of shock, there may be many intermediate and combined forms.

Indications for Therapy

The fall in blood pressure which frequently accompanies myocardial infarction has two effects upon the heart, the favorable effect of lowering the work of the damaged organ and the unfavorable one of reducing the perfusion pressure in the coronary circulation. The latter may be of particular importance, in that higher perfusion pressure might provide some collateral blood supply to the damaged areas. It may be assumed that the two opposite factors balance each other under ordinary circumstances. The appearance of the clinical manifestations of shock suggests that arterial pressure has fallen below the critical point of perfusion of important organs, including the heart, and that higher pressure may be necessary, regardless of its increased work load on the heart. Probably the fall in blood pressure that often follows acute myocardial infarction is, in part at least, a manifestation of a homeostatic mechanism which attempts to set the work of the heart at an optimal level. It would follow that the establishment of an arbitrary danger level of blood pressure is unsound. An expectant conservative attitude can be recommended even in the presence of systolic pressure as low as 80 mm. Hg, provided that none of the signs of shock are present, that the patient's urinary output is adequate, and that the heart rate is not unduly rapid. On the other hand, signs of shock may appear in a patient who had hypertension prior to the attack, even though the systolic pressure may be 120 mm. Hg or more; in that case, treatment may be indicated. Thus, the primary indication for treatment is the presence of clinical signs of shock. When shock is present, it is necessary to decide whether to use simple, nonspecific measures or to use antishock therapy. Nonspecific measures, including recumbency, administration of oxygen, and the use of morphine or its substitutes, sometimes correct the early shock which may be a manifestation of simple stress, apprehension, or nausea, or which may be a form of vasovagal collapse. If shock is of overwhelming severity or if it does not respond to nonspecific measures within a reasonable time, then more specific antishock therapy should be undertaken. Such therapy should be considered a major therapeutic maneuver and itself carries a definite risk.

In some cases, shock secondary to myocardial infarction may be associated with the presence of various forms of cardiac arrhythmias, which may be assumed to contribute to the state of shock. These include rapid cardiac rhythms, such as paroxysmal tachycardias, atrial flutter or fibrillation with uncontrolled ventricular rates, on the one hand, and higher degrees of heart block with slow ventricular rates, on the other. In the presence of circulatory embarrassment, even minor disturbances of rhythm, such as brief periods of bigeminal rhythm, could contribute to heart failure or shock. This is suggested by the fact that even a single premature beat can be followed by the appearance of mechanical alternation of the pulse for a period of several beats. Therefore, a serious effort should be made to eliminate arrhythmias, if possible, before antishock therapy is instituted. In those cases in which shock is associated with obvious evidences of cardiac failure, either left ventricular or combined type, treatment of failure should take precedence over antishock therapy.

Drug Therapy

Pressor Amines.—Sympathomimetic drugs with primary effect on peripheral arterioles are usually referred to as "pressor amines" and are used because of their action in increasing the systemic peripheral arteriolar resistance. Pressor effect is only one of their actions, however, and their effective use in hypotension may be overshadowed by other, undesirable actions. Thus, few of the older sympathomimetic drugs are useful for the treatment of shock. Epinephrine, the most powerful local vasoconstrictor, has a negligible effect on the peripheral vascular resistance. Its pressor effect is, in most part, due to a powerful stimulation of the myocardium and increase in cardiac output. The associated increase in myocardial irritability makes it an unsuitable drug for the treatment of myocardial infarction and cardiac failure. Ephedrine and amphetamine (Amphetamine, Benzedrine, Raphetamine) have an action similar to that of epinephrine, though slower and more sustained, and differ from the latter by being effective orally. These two drugs do not have, however, a dependable pressor effect and are used more for their bronchodilating and cerebrum-stimulating effects, respectively, although ephedrine has been used with equivocal results in the treatment of postural hypotension. Phenylephrine (Neo-Synephrine) was the first pressor amine to be used as a pressor agent during spinal anesthesia because of the predominant action on the cardiovascular system. Similar uses have been applied to hydroxyamphetamine (Paredrine). However, not until levarterenol (Levophed) became available did interest awaken in the use of pressor amines for shock occurring in cardiac patients.

Levarterenol, also known as *l*-norepinephrine, was long suspected of being the adrenergic nerve mediator, since it has been isolated from adrenal medullary extracts. The separation of pure levarterenol from racemic arterenols in 1948 supported the hypothesis of its physiological function and provided a basis for the study of its pharmacodynamic action, which eventually led to its clinical application in the treatment of hypotensive states. Studies by Goldenberg and co-workers[13] have shown that levarterenol administered as a continuous intravenous infusion increases the systemic blood pressure without increasing the cardiac output, therefore significantly raising peripheral resistance. In addition, levarterenol causes significant capillary and venous constriction. It has, furthermore, a direct stimulating effect upon myocardial contractility in the dog.[14] The question as to whether levarterenol enhances undesirable cardiac arrhythmias, a by-product of the myocardium-stimulating effects of drugs, is still a subject of controversy. Experimental evidence supports, as a whole, the view that the severe arrhythmogenic effect of epinephrine is matched by that of levarterenol.[15] Clinical studies suggest, on the other hand, that therapeutic doses of levarterenol do not frequently precipitate arrhythmias, although some investigators stress the importance of such dangerous complications.[16]

The action of levarterenol in increasing the peripheral resistance in human beings is amply demonstrated, both in normal individuals and in patients with shock.[17] This action makes it admirably suitable in normovolemic and hypervolemic forms of shock.[17a] Levarterenol has been used extensively in shock secondary to acute myocardial infarction.[18] The results of all the earlier studies were interpreted as showing that it has a beneficial effect on shock of myocardial infarction, both in restoring a more normal arterial pressure and in reducing the over-all mortality rate. A significant pressor effect was observed in the majority of cases. The effect upon the mortality rate showed a wide variation, with its reduction to 14% in one small series [19] and with relatively little reduction in others. Recently, reports have appeared denying any beneficial effect whatsoever of levarterenol in shock secondary to myocardial infarction.[20]

A critical evaluation of the effect of levarterenol on cardiogenic shock is rather difficult in view of the contradictory results. The difficulty is, in part, due to the lack of uniformity in defining the state of shock that follows myocardial infarction. The wide range of responses to therapy suggests that different types of patients were treated and compared with each other. Furthermore, the theoretical indications for therapy with levarterenol are not entirely clear. Those investigators who regard shock as a disturbance of the vasomotor mechanism use levarterenol primarily for its peripheral action of increasing arteriolar resistance. Those who believe that shock of myocardial infarction is cardiogenic regard any success from use of levarterenol as largely caused by direct myocardial action.[19] The latter view is based on two observations: (1) the use of levarterenol in patients who exhibited shock and cardiac failure, in whom signs of pulmonary edema and congestive phenomena improved; and (2) the failure to note such an improvement in similar patients treated with phenylephrine, which has a purely peripheral vasomotor effect.[19] These studies bring out the only positive arguments for the existence, in human beings, of a direct myocardium-stimulating effect of levarterenol. Yet these arguments are not entirely acceptable as evidence for such a cardiac effect of the drug. First, improvement of cardiac function could be effected by a pressor effect of the drug, resulting in improvement of coronary perfusion, and, second, the comparison between phenylephrine and levarterenol has been based on a series far too small to permit definite conclusions to be drawn.

Another important and undecided question is the optimal time for the administration of levarterenol. Some workers [18c] stress the importance of an early start of antishock therapy, suggesting that a delay of the onset of treatment for over three hours sharply limits the success and increases the mortality. Yet, if one is to treat shock within the first two hours of its onset, one is sure to include many cases of simple vasomotor collapse which could clear without specific therapy, therefore exaggerating the apparent success of the group treated earlier.

The principal advantage of levarterenol in the treatment of shock lies in its ease of administration. The drug, given by continuous intravenous drip, can take effect within a minute or two and can be instantly withdrawn if it is no longer needed. The pressor effect can easily be titrated by the speed of the infusion or by the concentration of the drug in the solution. Its disadvantage is the local vasoconstrictive effect, which may lead to serious tissue necrosis if extravasation of the drug occurs.

In recent years several other pressor amines have been introduced for the treatment of shock. The three drugs investigated for their effect on shock secondary to myocardial infarction are mephentermine (Wyamine), methoxamine (Vasoxyl), and metaraminol (Aramine).

In experimental animals, mephentermine shows an action similar to that of levarterenol by exhibiting a pressor effect caused by increase in systemic arteriolar resistance and a myocardial-stimulating action. In human beings, it has been used in shock accompanying myocardial infarction, with moderate success.[21] After intramuscular injection a pressor effect lasting up to four hours can be observed, with no significant increase in arrhythmias in the cases studied.

Methoxamine differs from mephentermine and levarterenol in that it shows, in experimental animals, a pure peripheral pressor effect, without exhibiting any myocardial effect. Experimental studies suggest a significantly lower tendency to produce arrhythmias. It is effective by the intramuscular route in intermittent doses.

Metaraminol combines a strong pressor effect with a myocardial-stimulating action in experimental studies.[22] Its clinical use is similar to that of levarterenol except for the absence of tissue-irritating action; therefore, the drug can be administered both by continuous intravenous drip and by repeated intramuscular injections.[23] Clinical trials of metaraminol for the treatment of shock associated with myocardial infarction showed results comparable to those of levarterenol.

Antiarrhythmic Drugs.—The appearance of disturbances of cardiac rhythm is common in acute myocardial infarction. If arrhythmias and shock appear together secondarily to myocardial infarction, it is reasonable to assume that the arrhythmia is contributing to the circulatory disturbance and that the elimination of the arrhythmia may be beneficial to the patient. As mentioned, the most serious types of arrhythmia are those associated with a very rapid or a very slow ventricular rate, such as rapid atrial and ventricular tachycardias, uncontrolled atrial flutter and fibrillation, complete heart block, and slow pulse rates due to bigeminal rhythm with ineffective premature beats.

The drug of choice for the control of atrial flutter and fibrillation is digitalis, because the immediate objective is to slow the ventricular rate before a further attempt is made to convert the arrhythmia to sinus mechanism. Shock associated with rapid atrial flutter and fibrillation is one of the few incontestable indications for the intravenous use of digitalis, preferably a rapid-acting digitalis preparation such as ouabain or the glycosides of Digitalis lanata. Digitalis may be used in atrial and nodal tachycardias but is ordinarily contraindicated in ventricular tachycardia.

Quinidine may be effective in controlling all forms of ectopic paroxysmal tachycardias and ectopic beats. Its use in restoring sinus rhythm in atrial flutter and fibrillation should follow digitalization which is effective enough to control the ventricular rate. Quinidine, however, exerts a depressant action upon the myocardium and requires caution when used in myocardial infarction. The parenteral use of quinidine in such cases should be considered a calculated risk in situations in which safer measures are ineffective or the urgency is extreme.

Procainamide (Pronestyl) has a specific effect in terminating and preventing ventricular arrhythmias. It has been used extensively in paroxysmal ventricular tachycardia both orally and intravenously, but whether it is more effective and safer than quinidine has not been definitely established. It has a depressant effect upon the heart and systemic blood pressure similar to that of quinidine.

The acceleration of the slow idioventricular pacemaker in complete heart block can be attempted in two ways. Occasionally, higher degrees of heart block may be caused by increased vagal activity, in which case atropine may be effective. More often, heart block is caused by direct depression or destruction of the conducting tissues. In such cases, the use of those sympathomimetic drugs that have a strong inotropic effect is indicated, namely, ephedrine, epinephrine in oil, isoproterenol (Aludrine, Isonorin, Isuprel, Norisodrine), and phenylpropanolamine (Propadrine). The drug most widely used of late is isoproterenol, which is effective parenterally and sublingually.

Parasympathomimetic drugs, including choline esters and cholinesterase inhibitors such as methacholine (Mecholyl) or neostigmine, may be used either alone or in conjunction with carotid sinus pressure to attempt to terminate paroxysmal supraventricular tachycardia. Potassium salts are used occasionally in shock secondary to myocardial infarction, in the presence of an arrhythmia which may have been caused by a toxic dose of digitalis.

Measures Used To Control Cardiac Failure.—The presence of left ventricular failure or of failure of the left and right sides of the heart is an indication for the use of conventional means of therapy of heart failure. Patients who have previously not had digitalis should be given the full therapeutic dose of the drug, preferably of a rapidly acting preparation; however, this procedure requires more caution than in cardiac failure not associated with myocardial infarction because of the hazard of inducing ventricular tachycardia in the latter condition. Salt restriction is an important part of the therapy of cardiac failure and may be, if necessary, supplemented by the use of diuretic agents.

Other Therapeutic Agents.—The administration of oxygen is widely used in myocardial infarction, particularly when complicated by shock. The physiological rationale for such therapy is questionable because, even in severe shock, the arterial blood is fully saturated, and cyanosis, when present, is caused by peripheral stasis and higher utilization of oxygen in tissues because of the low cardiac output. Oxygen inhalation can supersaturate the arterial blood by its physical solution in plasma. Whether this small additional amount plays a role in overcoming the possible tissue anoxia in the myocardium and other organs is not known. However, in the absence of pulmonary disease, oxygen administration is entirely safe, and its use can be justified empirically.

Pain-relieving agents are of considerable importance because they may be extremely effective in those cases in which vasomotor collapse is caused by ischemic myocardial pain. However, almost all pain-relieving drugs also have a hypotensive effect and in sensitive individuals may lead to nausea, which in itself is a shock-producing agent. Such drugs should be used, therefore, with caution, and the supervision of the patient during their action is essential.

Blood volume expanders formerly enjoyed a brief period of popularity,[10] but later they were largely replaced by pressor amines. Such methods included intravenous infusion of plasma or blood and the intra-arterial administration of blood. The results of these therapeutic maneuvers were equivocal regarding the over-all mortality of shock secondary to myocardial infarction, although temporary favorable effects upon blood pressure levels have been frequently observed.

Comment

The rational approach to the therapy of shock accompanying myocardial infarction is hampered by the inadequate knowledge of the underlying pathophysiology of this type of shock. The prevailing controversy regarding the mechanism of shock centers around the initial factor responsible for the state of shock.

This controversy regarding the factors responsible for shock poses a practical problem of therapy, as to whether peripherally acting or cardiotonic drugs should be employed. The variability of the clinical picture makes interpretation of the results exceedingly difficult. In spite of the widespread interest in the use of pressor amines, which undoubtedly are holding first place in the treatment of this syndrome, enthusiasm of some observers has to be balanced by denial of others that the drugs have any beneficial effect on this condition. The area of uncertainty involves two points: (1) whether the difference demonstrated in animal experiments between pure pressor amines (phenylephrine and methoxamine) and pressor amines with associated cardiotonic action (levarterenol, mephentermine, and metaraminol) can also be demonstrated reliably in the therapeutic range of use in patients, so as to justify the separate pharmacological classification of these drugs; and (2) whether the direct myocardial effect of some of these drugs, if significant, is an asset or a liability in their use in myocardial infarction. Neither of these questions can be answered authoritatively at the present time. The difference between levarterenol and phenylephrine has been studied in a few cases, which, as pointed out, does not constitute a valid argument. It should be noted that there is a similarity between the action of levarterenol, a combined pressor and cardiotonic drug, and the effect of blood volume expanders. However, levarterenol has replaced the latter, largely because of the ease of administration. Blood transfusions, which can relieve shock but have no cardiotonic effect, appear to be less effective in the shock accompanying myocardial infarction than is levarterenol; yet the difference between the two forms of therapy is not striking and could be accounted for by a more effective regulation of dose. The question of desirability of a cardiotonic action of a pressor amine hinges on the basic mechanism of shock accompanying myocardial infarction, as already discussed. It is generally agreed that a drug with a significant cardiotonic effect has, as a by-product, a tendency to increase myocardial irritability, which is particularly undesirable in myocardial infarction wherein the threshold for dangerous arrhythmias is low. It is believed that the answers to these questions might become available from a carefully organized comparative study, which would investigate the effect of four agents on clinically similar cases of shock secondary to myocardial infarction, namely, (1) pure cardiotonic drugs (digitalis); (2) combined cardiotonic pressor drugs (levarterenol, mephentermine, metaraminol); (3) pure pressor drugs (phenylephrine, methoxamine); and (4) blood volume expanders.

Summary

Shock accompanying acute myocardial infarction is subject to controversy concerning its cause and mechanism. It is suggested that this complication of myocardial infarction cannot be explained on the basis of a single mechanism but rather should be considered a clinical syndrome caused by peripheral vasomotor factors in some instances, by cardiac failure due to intolerable overload of the infarcted ventricle in others, and by inefficient cardiac function caused by arrhythmias in still other cases. At present, because of the unsatisfactory state of understanding of this syndrome, it appears preferable to treat the factor which clinically dominates the picture rather than to formulate a single therapeutic regimen applicable to all cases of shock secondary to myocardial infarction.

Therapeutic measures effective against surgical and other forms of peripheral shock have been applied to treatment of shock secondary to myocardial infarction. These include the use of blood or plasma transfusions given intravenously, intra-arterial blood infusions, and the administration of various pressor amines. All such measures have restored effective blood pressure in many cases, although it is not definitely demonstrated that the high mortality rate from this form of shock has been effectively reduced.

Pressor amines, which at present are considered the treatment of choice for shock, fall into two groups according to their actions in animal experiments, those with purely peripheral vasoconstrictor action and those with combined peripheral and cardiotonic action. It is not yet known whether, in human shock, the difference between the two groups is of practical importance or whether one or the other groups of drugs is superior in the treatment of shock secondary to myocardial infarction.

Shock accompanying myocardial infarction remains an exceedingly serious complication with a very high mortality rate. In spite of considerable enthusiasm concerning the effectiveness of new drugs, there are those who deny that specific antishock measures have any beneficial effects whatsoever.

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COUNCIL ON FOODS AND NUTRITION

The Council has authorized publication of the following announcement. These fellowships are sponsored by the Nutrition Foundation, Inc., in cooperation with the Council. In 1959, 10 fellowships will be given in honor of Dr. Virgil P. Sydenstricker, recipient of the 1958 Joseph Goldberger award in Clinical Nutrition.

PHILIP L. WHITE, SC.D., *Secretary.*

FELLOWSHIPS FOR RESEARCH IN CLINICAL NUTRITION

PURPOSE: To stimulate staff members and students of schools of medicine to take a more active interest in the science of nutrition.

AMOUNT: $200 per month for three months.

CONDITIONS: 1. Grant shall be made to a medical student on recommendation of a senior investigator. 2. Recipient will be selected by the Council. 3. Grant shall be used solely for remuneration of selected medical student. 4. Grant shall be limited to a period not to exceed three months during the nonacademic portion of school year. 5. No senior investigator may have more than one student per year receiving a grant. 6. Only a brief progress report or summary will be required. Publication will be at the discretion of the senior investigator.

APPLICATION: 1. Application should be made in writing by the senior investigator to: Council on Foods and Nutrition, American Medical Association, 535 N. Dearborn St., Chicago 10, on or before Dec. 15, 1958. 2. Application shall include: (*a*) brief outline of study proposed, (*b*) assurance that adequate physical facilities are available, (*c*) assurance (but not necessarily identification) of the availability of a qualified medical student.

MEDICINE AT WORK

- *Medicine's No. 1 Problem*
- *Pep Pills and Performance*
- *Doctors Improvise in C.D.*
- *Only 13% for Physicians*
- *MI—Communicable Disease?*
- *From Gladiator to Gridiron*
- *Rural Health—What's Ahead?*
- *"Matchmaking" in Medicine*
- *State of Disaster Plans*

Fall-out and Protection

There is a great need for better fact-finding and evaluation of world-wide radioactive fall-out, according to Willard F. Libby, Ph.D., a member of the U. S. Atomic Energy Commission. Lacking adequate statistical tools, he adds, existing evidence indicates that biological effects of a nuclear war would be serious and deadly but would "not constitute an overwhelming medical problem."

Dr. Libby's comments appear in prepared remarks scheduled for delivery next Thursday (Oct. 16) in Madison, Wis., before a symposium sponsored by the A. M. A. Committee on Foods and Nutrition. He makes these additional points:

—With better statistics we could estimate the world-wide hazard from nuclear war fall-out and could exercise more efficient control over the consequences.

—A national fall-out shelter program is an absolute necessity "for the defense posture of this country."

(See Pages 772 and 773 for items from the recent Boston meeting of the A. M. A. Committee on Civil Defense.)

Conferees listen to Dr. Joseph A. Falzone, National Institutes of Health, Gerontology Branch, Baltimore, as he spoke on "Basic Medical Research" at A. M. A. Planning Conference on Aging.

Conference Calls for Medical Society Action in Aging—"Medicine's No. 1 Problem"

Millions of people in this country face special problems of health and well-being as they grow old—problems which also influence the lives of their neighbors in every age group. What are these problems? What is American medicine doing to help solve them?

In Chicago last month, 150 representatives from 46 states—including medical society designates, state health commissioners, and members of agencies concerned with the multiple phases of aging and the aged—gathered at an A. M. A. Planning Conference. The purpose of the meeting Sept. 13 and 14 was "to develop effective responses to the growing challenges in aging which face medicine and to coordinate present and future medical society acticities at national, state, and local levels."

It was the first in a series of conferences sponsored by the Council on Medical Service's Committee on Aging. Future sessions, also under A. M. A. auspices, will separately feature representatives of insurance companies, nursing homes, federal agencies, and other groups whose contributions and aims in the field of aging might be brought together in a program of integrated action. A joint conference to crystallize the efforts and direction of all interested groups then will be held, probably early next year, according to Dr. Joseph D. McCarthy of Omaha, the Council chairman. He said: "Time does not stand still today. We cannot say to ourselves, 'these problems can be answered tomorrow.' If we fail to plan and to do our part now, we may have no chance tomorrow."

The planning conference, which was many months in preparation, took place during a period when reports from wide and varied sources were outlining a new surge of interest and concern for masses of population considered "old." Sample reports noted that:

—A special meeting of the Federal Council on Aging was being held (scheduled for Sept. 30) to review federal-state relationships. After referring to the meeting, Mr. Sidney Spector, of the Council on State Governments, told the A. M. A. planning conference: "The oldsters of this nation are ready now to exert the massive political control to which their numerical proportion has been building." One-fourth of the U. S. electorate is now 65 years or older, and their number is growing at twice the rate of the over-all national population.

—Congress had passed legislation calling for a White House Conference on the Aging in January of 1961—preceded by federally-financed conferences at the state level. Many of the state conferences would be held in 1960, a Presidential election year. A special staff from the U. S. Department of Health, Education, and Welfare was gathering data this month in preparation for the state conferences.

—In Oslo, Norway, an 11-nation advisory group for the United Nations' World Health Organization was recommending a series of studies on problems arising from the growing number of aged—covering such aspects as retirement and employment, nutrition, housing, fitness, and health education.

—With the help of a Ford Foundation grant, the 250-member National Committee on the Aging (of the National Social Welfare Assembly) was launching a project to survey relatively unexplored ground: *the extent and possible needs relating to* legal protection and guardianship for oldsters. The study is being conducted in cooperation with bar associations and banking firms. Other committee projects cover research, employment, housing.

These events expose only the visible ripples in a deep sea of complexity engulfing elderly people and their intertwining social, economic, and health problems. That is why the A. M. A. at its planning conference was emphasizing the basic strength potential of individual physicians and their medical societies (three-fourths of the state medical associations and scores of county societies have committees on aging)—to point up community effort as the key to solution of a gigantic national problem. That also is why not one, but four, large organizations in the health field are tackling the problem. This is the recently-created Joint Council to Improve the Health Care of the Aged, whose members represent the American Dental Association, the American Hospital Association, the American Nursing Home Association, and the A. M. A.

All four associations recognize that, at a time when his medical needs normally are greatest, the earning power of the typical oldster is at its lowest. Multiplied by the millions, it is this factor—more than any other—which challenges the entire community in every corner of the nation.

Selected Comments

The problem in its complexity, the challenge in its urgency, and the future in its opportunity are illustrated in the following selected comments made at the Chicago conference (an editorial on the meeting is published on page 779 of this issue of THE JOURNAL):

The A. M. A. Committee on Aging is headed by Dr. Frederick C. Swartz of Lansing, Mich. Other members are Drs. Theodore G. Klumpp of New York; Wingate M. Johnson of Winston Salem, N. C.; Cecil Wittson of Omaha; David B. Allman of Atlantic City; Edward L. Bortz of Philadelphia; Henry A. Holle of Austin, Tex.; and Henry B. Mulholland of Charlottesville, Va. Staff secretary is Mr. George W. Cooley.

Physician's Share of Public Costs for Indigent Care

A recent government report should debunk once and for all the idea that physicians receive the lion's share of public funds spent for health care of the indigent. The opposite is true—in most public assistance health programs, doctors' services represent the smallest cost item, according to the Department of Health, Education and Welfare.

An analysis of the HEW report, made this month by the A. M. A. Committee on Indigent Care, reveals that of the total 287 million dollars reported for indigent health costs last year, less than 13% was paid to physicians. Over five times as much was spent for hospitalization. Almost as much was spent for drugs and supplies as for physicians' services. In all types of public assistance programs—for the disabled, the aged, dependent children, and general aid—hospitalization was the largest health cost item. Physicians' services was the smallest in every category except aid to dependent children, where it comprised 25% of total health costs.

"This report should be of particular interest," said a spokesman for the A. M. A. Committee, "because the physician frequently has been blamed for the cost of such services, although these may include hospital and nursing home costs, eyeglasses and other appliances, and even dental care. Now the unjustness of the blame is documented. The basic fault lies with the lumping together of all indigent health services under the catch-all heading of 'medical care.'"

Dr. Louis M. Orr, A. M. A. President-elect—"Medicine and its related fields have been largely responsible for extending longevity. Therefore medicine and its related fields have a responsibility of doing all they can toward solving any problems which they themselves have helped to generate."

Dr. David B. Allman, immediate past President of the A. M. A. and a member of the Committee—"There is no more important issue before American medicine today than the problems of the aging and the aged" (Medicine at Work, THE JOURNAL, July 27, 1957).

Dr. Theodore G. Klumpp, a Committee member and president of Winthrop Laboratories—"Decline will proceed more slowly (after the prime of life is reached) if the bodily functions are fully employed and, through moderate stress, they are held to their maximum capacities. . . . We must do everything we can, as we grow older, to resist the inclination to slow down the tempo of our living."

Dr. LeRoy Burney, surgeon general of the U. S. Public Health Service—"Joint action by the medical and health professions has made possible the elimination of many scourges of man. At the same time, these successful measures have opened the door to the most complex and provocative health problem of an aging population—chronic illness."

Dr. Wingate M. Johnson, a Committee member and professor of clinical medicine at the Bowman-Gray School of Medicine, Winston-Salem, N. C.—"Perhaps the most important challenge to the medical profession is to train its own members in the care of the older patient. This training should begin while they are medical students. . . . The family doctor has a peculiar advantage in being able to see the viewpoints of both the older and younger generation and to talk frankly to both."

Dr. Cecil Wittson, a Committee member and chairman of the Department of Neurology and Psychiatry at the Nebraska Psychiatric Institute, University of Nebraska College of Medicine—"There is a very impelling personal reason for the physician's participation in the community solution of the problems of aging. He is proverbially conscious about the health of his patients, but notoriously reckless with his own. But geriattrition is the common fate of man. For once, the healthy future you are attempting to guarantee is not the other fellow's. It is your own."

Dr. Jack Weinberg, clinical associate professor of psychiatry at the University of Illinois—"Aging begins when an individual stops adapting. . . . We Americans are so busy planning for the future that when it becomes the present we cannot enjoy it because we are thinking about the future."

Dr. Edward L. Bortz, a Committee member and chief of Medical Service Staff "B" at Lankenau Hospital, Philadelphia—"With one hand society is extending the life of man, with the other it is writing him off because of the date on his birth certificate. . . . If the 65 age barrier is not eliminated, many citizens face an extended senescence which could reach the proportion of a national calamity."

Exhibit and Workshops

Workshop sessions which followed presentations by individual speakers at the planning conference evoked recommendations which included these:

"People should be willing to pay for local services for the aged as for police and fire protection."

"Home care programs and homemaker services should be expanded."

"Physicians should not dominate the team effort."

"How about a central revolving fund from which loans could be made to oldsters for medical care?"

"Medicine has got to help the people evaluate nursing home care."

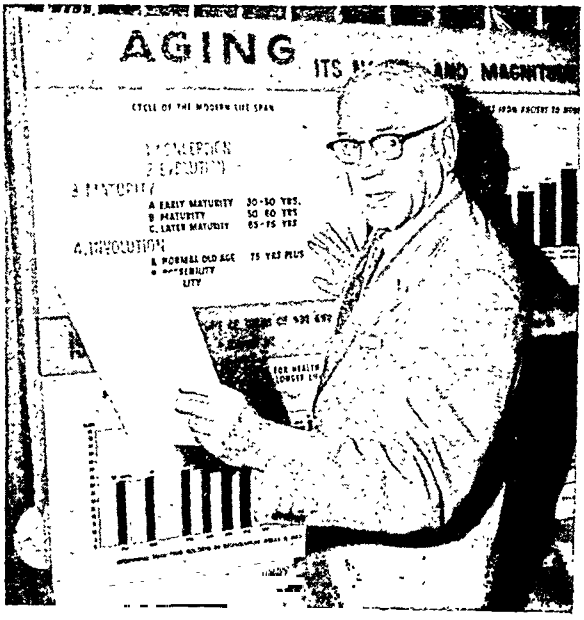
Between sessions, participants previewed, for the first time, a new exhibit to be introduced at the A. M. A. Clinical Meeting in Minneapolis Dec. 2-5. It illustrates the following six objectives of the Committee on Aging:

1. To seek public acceptance of a proper perspective toward older citizens.
2. To promote health maintenance and restorative services.
3. To encourage the training of personnel and the development of facilities for the care of the aged.
4. To cooperate in developing community programs for senior citizens.
5. To expand medical and socioeconomic research in reference to aging and the aged.
6. To improve methods of financing health care for the aged.

Beyond the Conference

Those aims form the framework of last month's planning sessions. But they do more than that—they delineate the broad areas of a continuing campaign which the medical profession, along with other groups, is pursuing on a long-range basis in order to better the health of the entire nation. For, in referring to our aging population, the conferees last month underlined one salient fact: It is too easy to fall into the error of considering these millions of elderly people as a group apart from the rest of society. Each of us is aging, from the moment of birth—really, from the instant of conception.

As Dr. Frederick C. Swartz, the Committee chairman, expresses that point: "It is not the aim of the Committee to break the human family up into groups because of some definable differences, such as age—but, rather, to keep the unit together by placing emphasis on their similarities. Medicine offers a positive health program which emphasizes physical exercise, intellectual activity and mental equanimity as a blueprint to continued good health. This whole program is health oriented, not disease impelled."


AGING
ITS … AND MAGNITUDE
CYCLE OF THE MODERN LIFE SPAN
A EARLY MATURITY 30-50 YRS.
B MATURITY 50 60 YRS
C. LATER MATURITY 65-75 YRS
A NORMAL OLD AGE 75 YRS PLUS
FOR HEALTH

Dr. Edward L. Bortz, a member of the Committee on Aging, demonstrates the new exhibit which the Committee will show at the A. M. A. Clinical Meeting in Minneapolis.

Reports Show Regional Variation in Disaster Emergency Planning

Distinct variations in the condition of medical disaster and defense planning efforts of eight Northeastern states were indicated by reports at a regional meeting held by the A. M. A.'s Committee on Civil Defense in Boston Sept. 13.

The Committee, one of two under the Council on National Defense, holds semiannual meetings in regions of the Office of Civil and Defense Mobilization. These sessions enable state medical societies and their woman's auxiliaries to report on local plans and problems.

State reports ranged all the way from Maine's elaborate organizational complex involving practically all of the state's health and medical groups to a New Jersey doctor's charge that disaster planning in his state is not supported by the state government.

Dr. Clyde I. Swett, representing the Maine Medical Association, outlined in detail efforts in his state to incorporate all health and medical agencies into both the planning and execution phases of disaster organization. "Each medical and paramedical section is charged with setting its own training plans, but the work is directed by an advisory council whose members are recruited from all health fields," he said.

Dr. R. Winfield Betts, chairman of the Special Committee on Civil Defense–Disaster Control of the Medical Society of New Jersey, reported the state is unwilling to enforce the New Jersey Civil Defense law, because it is politically unpopular. "Civil defense is a government responsibility," Dr. Betts said. "The government must develop the organization and make it work." He said his committee was anxious to assist the state director of civil defense training but was unable to get any action.

Different View From Vermont

Taking a different view was Dr. William Worthington, director of Medical Care Services for Vermont. He said he felt that lack of interest or organization by governmental units can be overcome. He said: "Once people are sold on emergency planning, no matter how distasteful the subject may be, they will force adequate federal and state planning to meet the situation." Mr. Getty Page, executive secretary of the Vermont State Medical Association, said his group was "about to come up with a good plan." The association, he said, had a good plan in the past, but it dissipated through lack of use and changes in personnel.

"Poor organization of emergency planning at state levels can usually be attributed to a lack of conviction that 'something can be done.'"

This is the opinion of Dr. Harold C. Lueth, chairman of the A. M. A. Committee on Civil Defense. He says: "The idea of the H-bomb numbs people into inactivity. We must emphasize that, while emergency care is an everyday part of medicine, its application in times of both war and natural disasters will be haphazard without an adequate plan."

Dr. Lueth feels that organized medicine must take the initiative in such planning, not wait for governmental units which may be reluctant to outline duties for professional groups.

A difference of opinion on the state of medical preparedness for defense and disaster in Massachusetts was shown in reports from its representatives. Dr. Robert W. Buck, secretary of the Massachusetts Medical Society, characterized the Bay State's situation as one of "confusion." He said an organizational plan had been laid out on paper, but the state society had produced "no action" on civil defense. This view was disputed by Mrs. John Crowley, chairman of the Committee on Civil Defense of the Woman's Auxiliary. "I think we have a good civil defense set-up," she said. "In my area (Lynn), each physician knows his post for an alert."

Dr. Harold C. Lueth of Evanston, Ill. is Chairman of the A. M. A. Committee on Civil Defense. Other members are Drs. Cortez F. Enloe Jr. of New York; Carroll P. Hungate of Kansas City; Max L. Lichter of Melvindale, Mich.; David Henry Poer of Atlanta, Ga.; Roscoe L. Sensenich of South Bend, Ind.; and Charles W. Steele of Lewiston, Maine. Mr. Frank Barton of Chicago is Staff Secretary.

New York, too, has had its share of confusion in civil defense efforts, according to Dr. Edward A. Burkhardt, chairman of the Special Committee on Civil Defense and Catastrophe. But he felt the state had "come a long way" in many aspects. "New York has government-supplied 200-bed civil defense emergency hospital units and stockpiled medical supplies," he said, "but we need concentrated effort and an annual check on the assignment of physicians to stations." The medical association's role, he said, should be to outline a sound medical program and present it to the state government.

Progress in Rhode Island

Rhode Island's progress in medical civil defense has been satisfactory, Dr. James B. Moran, chairman of the state association's Committee on Disaster, told the group. He said: "Atomic and disaster emergency plans have been instituted in hospitals. We have done some work with the CD-supplied packaged emergency hospital unit (Organization Section, The Journal, June 22, 1957) and are convinced each unit needs a trained civilian crew to set it up."

Counteract Mock Alert Shortages with Variety of Substitutions

Conditions simulated during Operation Alert 1958 in New England, New York, and New Jersey indicated shortages "so tremendous they could not possibly be met from resources within the region." That is what Dr. Jacob H. Landes, regional medical officer, told the A. M. A. Committee on Civil Defense last month in Boston.

Dr. Landes said that had the emergency been real, rather than an exercise, the following measures would have been necessary:

—Considerable stocks of sulfonamides would have been pressed into service to replace penicillin and broad-spectrum antibiotics.

—New sulfonylureas would be substituted for insulin for adult diabetics and insulin supplies reserved for children.

—Barbiturates and sedatives would be recommended to replace narcotics.

—Linen supplies in retail stores, textile houses, hotels, and laundries could be frozen and requisitioned for conversion into surgical pads and dressings.

—Training programs for self-help medical care would be organized to relieve the shortage of professional personnel.

—Expansion of existing hospital facilities to three or four times their normal patient load would be attempted, as well as the discharge of noncritical patients.

Evaluate Task Force Material in Emergency Medical Care Study

"Millions of casualties" and perhaps as much as 60% of the nation's skilled health and medical personnel dead or incapacitated . . .

This is the problem on which Dr. Earle Standlee, Staff Director of the A. M. A. Commission on a National Emergency Medical Care Plan, is basing the Commission's plan of study to establish criteria for the provision of medical care of the surviving population.

Speaking at the regional meeting of the A. M. A. Committee on Civil Defense in Boston recently, Dr. Standlee said the Commission is currently evaluating and classifying information prepared by three Task Forces established last April. Membership in these Task Forces was recruited from national health and medical organization which would be directly involved in the management and care of mass casualties in the event of enemy attack.

The Commission was created in April, 1957, by the A. M. A. Board of Trustees to develop a plan under a contract with the Office of Civil and Defense Mobilization (formerly FCDA).

Doctors Report on Alert Tests

In an effort to promote medical participation in disaster preparedness tests, the program of the Ninth Annual County Medical Societies Civil Defense Conference to be held in Chicago Nov. 8-9 will feature reports on several field test operations conducted this year. These will include:

Test Exercise Star—based on a mock earthquake of severe intensity, and conducted by the Alameda Contra Costa (California) Medical Association in cooperation with civil and military authorities.

Operation Prep Pitt—dealing with a theoretical jet plane crash into the Pitt Fieldhouse, and sponsored by the Allegheny County (Pennsylvania) Medical Society with the cooperation of local authorities.

Operation AFTA—based on a simulated plane crash on the Tulane University campus, and conducted by the Committee on Medical Education for National Defense (MEND) of the Tulane School for Medicine.

CD Ideas at Workshop Sessions

Workshop sessions held at the recent Boston meeting of the A. M. A.'s Committee on Civil Defense produced several ideas. Suggestions advanced:

—Scale models of the government-issued 200-bed civil defense emergency hospitals, to be used as an aid in training.

—Use of armed forces reserve units in tests of disaster plans.

—Urging of physicians to become well informed on radiological problems so that they may instruct patients on such matters as the handling of food, water and sanitation.

—Role of the Woman's Auxiliary as teachers in home survival care.

How Contagious Is Mental Illness?

A relatively unexplored concept—the communicability of mental and emotional illness—will come up for group discussion next month in Chicago as a highlight of the Fifth Annual Conference of Mental Health Representatives of the State Medical Associations.

Scheduled as chairman of this discussion in Chicago on Nov. 21 is Dr. Walter Baer of Peoria, a member of the A. M. A. Council on Mental Health, which is sponsoring the two-day meeting. Other round-table groups will consider mental illness and health in the aged, education for psychiatric medicine, the Joint Commission on Mental Illness and Health, and mental retardation in school children. Dr. Leo H. Bartemeier of Baltimore, Chairman of the Council, will preside at plenary sessions. Guest speakers will include A. M. A. President Gunnar Gundersen and Jonas E. Salk.

Safety in Sports— A Milestone and a Program

As the football season pushes into full swing this month on campuses across the nation, physicians could note an all-but-forgotten golden anniversary of an occasion which does great credit to the game and to their profession.

It was exactly 50 years ago that Dr. Edward H. Nicols, a physician at Harvard University, braved outraged cries of the school's football players by requiring them to wear headgear, braced shoes, thigh guards, and collarbone and shoulder pads. This was unheard of, never done before. Yet, only two years earlier, in 1906, sports enthusiast Theodore Roosevelt had called a White House conference of representatives from Harvard, Yale, and Princeton, in a move to transform the game from brutal roughhouse into clean and fast play.

Dr. Nicols recognized that the outcome of the conference—introduction of the forward pass and some other modification of rules—produced a safer game. But it wasn't safe enough—19 concussions on the Harvard squad in a single year. With introduction of his protective football paraphernalia a half-century ago (only three concussions at Harvard that first year) the game rose in prestige, although it still is one of the most hazardous of body contact sports. For the first time this season, some college teams will be using new type helmets (developed with the help of physicians at Cornell University and other research centers) which promise to further reduce that hazard.

The concern displayed by Dr. Nicols for the health of his school's team is shown manifold today by thousands of physicians the country over. They are doing something about the injuries which have killed at least 1,000 youths in all sports, and injured tens of thousands more, since record-keeping of these casualties began on a broad scale 25 years ago. What are the doctors doing? They are serving as team physicians, coaches, medical advisors for schools and on school boards. They are serving as design consultants to sporting equipment manufacturers. They are in (and on) the field and in the laboratory, conducting studies in athletic injury.

Most significantly, they are working with many experts outside of medicine—trainers, dieticians, educators, coaches, and others—who also are dedicated to making athletics more of a body-building asset and less of a body-breaking liability.

Chairman of the A. M. A. Committee on Injury in Sports is Dr. Allan J. Ryan of Meriden, Conn. Other members are Drs. Carl Badgley of Ann Arbor, Mich.; Francis C. Grant of Philadelphia; George Hammond of Boston; Harold Muller of Berkeley, Calif.; Owen B. Murphy of Lexington, Ky.; Thomas B. Quigley of Boston; and Augustus Thorndike of Cambridge, Mass. Staff secretary of the Committee is Fred V. Hein, Ph.D.

A. M. A. Forms Committee

So concerned has the medical profession been with raising these thresholds of safety in competition that four years ago the American Medical Association's Board of Trustees created a Committee on Injury in Sports to determine what causes specific athletic hurts, when they occur, and what can be done about them. This summer, the eight-man committee, headed by Dr. Allan J. Ryan of Meriden, Conn., joined with the National Collegiate Athletic Association and the National Association of Intercollegiate Athletics in presenting a four-point "Bill of Rights for the College Athlete." The document (The Journal, page 2087, Aug. 23, 1958), now being distributed to universities and colleges throughout the United States, enunciates the principles of good coaching, good officiating, good equipment and facilities, and good medical care as they relate to each other in benefiting the athlete.

"So far as most schools are concerned, this Bill of Rights is not new—it has been observed in every region of the country in some form or other for many years," Dr. Ryan, a one-time collegiate distance runner, said last week. "What the statement does set down, however, is a synchronization which, we feel, will make these principles uniform. And, while these concepts relate to college sports, they are applicable to the high school, other amateur, and professional athlete as well.

"The Committee, really, has just begun to explore this broad field. Our program also calls for looking into the value of conditioning in various sports. We are concerned, too, with the large number of ankle and knee injuries occurring in all contact athletics. We are studying specific bodily hazards in skiing, boxing, skin diving [papers on these topics will appear in future issues of The Journal], auto racing, hockey, soccer, baseball, and other forms of sport. While we hope to improve methods of treatment and rehabilitation for the injured athlete, our highest priority goal is to prevent injuries.

Other Programs

The A. M. A. Committee headed by Dr. Ryan may be taking the lead for the profession but it does not, by any means, represent the only medical endeavor to benefit athletes:

—In at least half the states of this country, medical advisory committees whose members are drawn from hospital staffs, local health departments, and medical societies are working with high school athletic associations to handle injury problems, develop preventive measures, and establish physical examination programs.

—High school sports injury conferences are being held regularly under the auspices of state and county medical associations. One such athletic in-

Amphetamines, Athletes, and Performance

How effective, if at all, are the amphetamines ("pep pills") in athletic performance? How widespread is their use by athletes? What is their potential for bodily harm? How addictive are they?

These and related questions are being explored by a special A. M. A. Committee on Amphetamines and Athletes, in cooperation with university and high school athletic associations. The committee, created by the Board of Trustees last year at the direction of the A. M. A. House of Delegates, is now processing replies from a survey conducted early this year at approximately 600 colleges and 800 high schools. Also being studied are notes of interviews with coaches, team physicians, trainers, key officials, and others connected with professional, college, and high school sports. These include the commissioners of professional associations for football, hockey, basketball, and baseball.

While this questioning was going on, the special committee and its staff launched two separate studies to learn whether alleged stimulation of athletes from amphetamine drugs was real or imagined. And if the stimulation were real, was it psychological or physiological in nature?

These and related answers are not yet known. In fact, they will not be determined until the committee submits its findings to the House of Delegates in December. In developing its report, the special Committee on Amphetamines and Athletes is breaking new ground. For, while there have been a number of studies along general lines (including evaluations of pep pill use by Japanese, British, and American flight crews during World War II), none have been definitive enough for the medical goal as pursued by the Committee.

Some of these reports have been conflicting, confusing, and shallowly sensational. For example, it has been said: "Amphetamines overcome fatigue but do not stimulate." "They definitely do stimulate—the four-minute mile would not have been possible without them." "They don't do a thing but fool the athlete into believing he can do better." "They are employed as psychological weapons only, to demoralize members of an opposing team." "They are addictive." "There has been no evidence of addiction."

The controversy over pep pills is not confined to the United States. It is keeping doctors and athletes talking in Japan, Germany, Mexico, Sweden, and other nations. In England, Sir Adolphe Abrahams not long ago told the Society for the Study of Addiction: "If it were practicable to construct a tunnel with oxygen-enriched atmosphere in which runners competed, record performances would be accomplished. But would this be approved? If amphetamine and cortisone can directly release another reserve of energy, are they not to be accepted as contributing to normal physiological well-being?" His statement is open to attack on the ground of sportsmanship—particularly in amateur athletics. The statement also emphasizes the use, rather than the abuse, of amphetamine. Yet, is even judicious use safe? And if it is, what are the perils of misuse? That is what the British Association of Sport has been asked to help determine. For in England, as in the United States, the use of amphetamines in sports is officially condemned by athletic associations.

In less than two months, physicians at last should be able to see the first scientific portrayal, via an official A. M. A. committee report, of the extent of amphetamine use in sports—and how, or whether, this drug relates to health, ethics, and performance.

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jury clinic in Santa Ana, Calif., recently attracted 50 coaches from 15 high schools and junior colleges. Similar high interest is indicated in such a conference set for Nov. 7 in Milwaukee under auspices of the State Medical Society of Wisconsin, in cooperation with other medical groups, educators, and the Wisconsin State High School Coaches' Association.

—Postgraduate courses in sports injury problems are becoming more and more popular with practicing physicians. In the past year, for example, such courses in Colorado and Oregon brought attendances of more than 200 doctors each.

—In several regions of the country, most recently in Texas, organizations of athletic team physicians are relating those groups to activities of local medical societies. Similar collaborations are occurring on a broader level, as witness cooperative studies of the International Federation of Sports Medicine with the World Health Organization.

Efforts within the profession to promote the health of the athlete are matched by activities outside of medicine. These include an ongoing study of injuries in Army athletics, a current NCAA survey of football injuries in selected colleges, and recent establishment of a four-year college curriculum for the preparation of qualified trainers—all aimed at keeping the sportsman in peak condition.

Today, six surgeons, six physiotherapists, a dietician, a radiologist, and numerous coaches and trainers are serving at Harvard—to name only one school having a sports medicine program. It is a far and progressive cry from the days of Dr. Nicols when he insisted on protective gear for Harvard football players 50 years ago. It is an even farther cry from the days of Claudius Galen, the first team doctor in history, who tended the gladiators in 200 A. D.

These milestones mark a growing medical interest in athletics and athletes. They form a backdrop to the program now being joined by doctors everywhere as more and more people, participating in sports of all kinds, face the good health along with the occasional hazard of physical contest.

Expanding Challenge Told by Rural Health Advisors

Dr. F. S. Crockett's expressed fear that the A. M. A. Council on Rural Health might have reached a plateau in its operational curve was quickly dispelled when the executive committee met with its lay advisory committee Sept. 5 in Chicago. Dr. Crockett is Chairman of the Council. His plea to the advisory groups' representatives for the sort of program they could "go to bat for" brought immediate results.

Ten representatives of national farm, educational, research, and publishing organizations came to the meeting primed with suggestions as to areas of work and investigation that might bear fruit in the field of rural health.

Similarity of interest on the part of many of the advisory groups represented was apparent in several areas: nutrition; hospital facilities and insurance plans; the possible transference of antibiotics and hormones in food from milk, poultry, and meat animals to humans; and the need for leadership and medical cooperation in rural health efforts.

Mr. Beatty H. Dimit, chairman of the Interim Health Committee of the National Grange, said the Grange feared most that the rising cost of hospital care might "destroy Blue Cross." The Grange, he said, would like to see the Council investigate deductibility features in hospital insurance policies.

The widespread inclusion of hospital insurance as a fringe benefit in labor contracts has resulted in such overloading that hospitalization has become increasingly difficult for some patients, according to Mr. Herbert J. Voorhees, chairman of the Health Committee of the American Farm Bureau Federation. One of the big jobs ahead, Voorhees said, is to find funds for additional construction.

Expressing concern, too, over pyramiding costs of hospital construction and operation was Mr. Paul C. Johnson, editor of *The Prairie Farmer* and vice-president of the Board of Trustees of Lutheran Deaconess Hospital in Chicago. He said: "A hospital must be an efficiently operating unit, like a big factory, before savings can be accomplished. People have expensive tastes in medical care."

Dr. Martin P. Hines, a veterinarian from Raleigh, N. C., thought the Council should look into the question of whether antibiotics, especially penicillin as used to control mastitis in cows, might not be making the "entire population" penicillin-sensitive. Richard C. Davids, editor of *The Farm Journal*, agreed that the possible overuse of antibiotics was "one of the big questions" of farmers.

While agreeing that continued work on nutrition was important in rural health, Johnson felt that new approaches are necessary. Johnson said that future campaigns, in addition to plugging a theme such as "Better Breakfasts," would have to place greater emphasis on changed living patterns.

"We have to keep in mind that many people just don't wake up hungry," he said. "To them, breakfast is just those few minutes between dressing and leaving for work."

Chairman of the A. M. A.'s Council on Rural Health is Dr. F. S. Crockett of West Lafayette, Ind. Dr. Carll S. Mundy of Toledo, Ohio, is Vice-chairman, and Dr. George M. Fister of Ogden, Utah, is liaison member from the Board of Trustees.

Regional directors and the states they represent include Dr. Mundy (Michigan, Missouri, Ohio, Indiana, and Illinois), Dr. Fred A. Humphrey of Fort Collins, Colo. (New Mexico, Colorado, Utah, Montana, and Wyoming), Dr. Norman H. Gardner of East Hampton, Conn. (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Delaware, New York, New Jersey, and Pennsylvania), Dr. Willard A. Wright of Williston, N. D. (North Dakota, South Dakota, Iowa, Nebraska, Wisconsin, and Minnesota), Dr. Allen T. Stewart of Lubbock, Texas (Oklahoma, Kansas, and Texas), Dr. W. J. Weese of Ontario, Ore. (Idaho, Washington, and Oregon), Dr. Charles R. Henry of Little Rock, Ark. (Florida, Georgia, Alabama, Mississippi, Louisiana, and Arkansas), Dr. Carroll B. Andrews of Sonoma, Calif. (California, Arizona, and Nevada), and Dr. W. Wyan Washburn of Boiling Springs, N. C. (Maryland, West Virginia, North Carolina, South Carolina, Kentucky, Tennessee, and Virginia).

Secretary of the Council is Mrs. Arline Hibbard.

Need for Leadership

The need for greater leadership by state and county medical societies in rural health programs was expressed by several of the advisory groups' representatives when they met recently with the executive committee of the Council on Rural Health in Chicago.

"Our women are good health representatives," Mrs. Mason G. Lawson, Chairman of the By-Laws Committee of the A. M. A. Auxiliary, told the group, "but we sometimes feel the lack of a place in the program. We rely on the medical societies for guidance and advice and we need more leadership."

Warning of the possibility of government interference "if we don't do it ourselves," Mr. Herbert J. Voorhees of the American Farm Bureau Federation said, "We need more intraprofessional urging of cooperation on rural health programs. I feel the A. M. A. has not sold rural health programs to the state societies."

As an answer to the need for leadership, Mrs. Lawson suggested the advisory committee theory be extended to local levels in rural health work as an operational device.

Doctors and Communities Rated in Alabama Placement Survey

Communities and doctors seeking each other (Medicine at Work, The Journal, Sept. 29, 1956) in the perennial problem of physician placement are finding the way made easier for them in at least one state, thanks to a "community medical rating" survey conducted by the Medical Association of the State of Alabama.

With this study, the State Association aims to do more than just place a doctor in a town. Helping the community to evaluate itself and learn to keep a physician once he arrives is one major objective. Providing resource material for prospective physicians is another. The first was planned for in the booklet "Your Town—Weighed in the Balance." The second is being fulfilled by the accumulation of community information on equipped medical facilities, new industries, churches, and schools not previously listed in placement service files.

So far, Texas and Alabama are the only states reporting use of a Community Rating Schedule which was developed in 1953 by the A. M. A.'s Committee on Medical and Related Facilities. The schedule rates "individual need priorities" of communities and "desirability priorities" of physicians.

The survey committee sent medical questionnaires to town clerks in 301 municipalities with populations of 25,000 or less, with the cooperation of the Alabama League of Municipalities. If no response was received, the questionnaire was sent to the local chamber of commerce. The Alabama Academy of General Practice distributed a similar questionnaire to a member in each county. These mailings brought responses from one or more towns in 62 of the state's 67 counties.

With the reports tabulated, committee members made pilot studies of three communities. They sent letters of explanation to the communities and county societies and applied the Community Rating Schedule at meetings with local representatives. Then, with the initial studies completed, the committee visited other communities—38 in all, in 24 counties. Two of these towns had secured physicians within a month. The committee visits and evaluates each new community added to the placement service files. Reports are made available, on completion of each study, to interested physicians.

Neither Alabama, nor Texas, which made a similar study (*J. A. M. A.* 157:365-366 [Jan. 22] 1955), harbor doubts as to the value of their efforts. The Alabama report on the work says in part:

"If nothing else were accomplished . . . the time, money, and effort involved were justified in enhancing the relationship and prestige of the medical profession in Alabama with these communities."

MEDICINE AT WORK in future issues

- ***Space Medicine Conference***
- ***Mental Health in Industry***
- ***Growth in Prepayment***
- ***Medicine—A Lifelong Study***
- ***Racketeers Hit Doctors***
- ***Emphasis on Rehabilitation***
- ***Doctor-Lawyer Rapport***
- ***Women in Medicine***

Profession as "Matchmaker"

Where do most doctors have their hearts set on practicing?

California, Illinois, and New York.

Where is the greatest demand for physicians?

Illinois, North Carolina, Wisconsin, and Minnesota—listing over 100 opportunities each.

Where are the forces of doctor demand and supply likely to first meet in a courtship which weds a doctor to a community?

A. M. A. headquarters in Chicago.

These facts stand out in a report this month by the A. M. A. Committee on Medical and Related Facilities, which oversees activities of the Physicians Placement Service. Working through state medical societies, the A. M. A. office in the past year served as go-between for nearly 2,000 physicians and 1,700 communities trying to get together. Most of these physicians had recently completed an internship or residency; the others were just out of military service or were trying to relocate. Many of the communities were—and are—seeking better medical care for their citizens.

How does the medical profession play the matchmaker? It makes its placement services known through exhibits at medical student meetings, announcements to community leaders, and leaflets and listings to the profession. Many doctors express their preferences by mail and in person to Chicago—last year nearly 300 of them, some traveling cross-country, came directly to the A. M. A. office (under the Council on Medical Service) to gain a picture of location opportunities. But, in almost all cases, it is the state medical association placement service which brings the community and the doctor together after the A. M. A. "clearinghouse" initiates introduction.

(A detailed annual report of the A. M. A. Physicians Placement Service is scheduled for publication in The Journal on Oct. 25, 1958.)

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FLASH BLINDNESS AND CHORIORETINAL BURNS PRODUCED BY ATOMIC FLASH

GUEST EDITORIAL

Brig. Gen. Victor A. Byrnes (MC), U. S. A. F.

TWO separate, though related, conditions may be produced by atomic flash. One is flash blindness, a temporary incapacitation produced by visible light, and the other is retinal burn, produced by a combination of visible and infrared light. Their implications from a disaster standpoint are quite different.

Flash blindness is due to the bleaching of the retinal photosensitive chemicals by bright light. The duration of the incapacitation produced depends on the brightness of the items one must see after the flash is over. Hence in daylight this is not a serious problem. The pupils will be smaller and will admit only 1/50th as much light as at night and the visual task will ordinarily be much brighter. There may be a temporary scotoma in the field of vision but unless a burn is produced it will disappear and it is not visually incapacitating. At night visual disability will exist up to half an hour if the source of illumination of the visual task is a moonless sky. Any increase in brightness of the visual task will reduce the disability time proportionately. The blink reflex is of little value in protection against flash blindness because of the extreme intensity of the light. The exact effect in any individual case will depend on the brightness to which the eye is exposed (whether looking toward the fireball or away), the reflectance of surfaces, and protection afforded by buildings, overhanging structures, hats, or protective filters. The reflectance of the background and of the atmosphere varies so much that distances at which flash blindness can be expected will vary tremendously. With nominal bombs at night in the open with the subject facing the direction of the detonation it can be expected at distances of over 35 miles.

Effective filters to prevent flash blindness usually also prevent the individual from doing anything useful. This is true except for special filters designed with sharp cutoffs to permit certain specialized visual tasks utilizing narrow bands of monochromatic light. If a period of warning is given the individual can cover both eyes to prevent both flash blindness and retinal burns. If he must see during the warning period a patch may be worn over one eye to protect the retinal adaptation in that eye even though the uncovered one is dazzled by the flash. The patch may then be placed over the eye with flash blindness so it can adapt and be protected in the event of a second flash later while the previously protected eye is used for seeing.

The effect of flash blindness on implementation of civil defense planning will depend on adequate warning and on the success with which knowledge of the condition has been previously imparted to civil defense personnel.

Chorioretinal burns are a related phenomenon. Their production depends on the lens system of the eye forming an image of the fireball on the retina. The visible and near infrared light (400-1,250 mμ) energy is absorbed by the retinal and choroidal pigment. The distance to which these can be produced depends on pupillary size, clarity of the atmosphere, and size of the bomb. They can be produced by a nominal bomb to distances over 35 miles when the air is clear. Again, so much energy is delivered before the blink reflex that it is not effective in preventing this lesion. Pupillary size is important, thus making this much more of a nighttime than daytime hazard. The direction of the visual axes is much more important than point of focus. While the latter has some effect on the area of the retinal image it is not significant in attenuating the energy per unit area in it. Unless the image of the fireball is formed on the macular area the permanent effect will be a scotoma in the peripheral field similar to that of the physiological blind spot. It differs in that it will be in the same position in both eyes, thus giving a true symmetrical binocular scotoma. This will not ordinarily be a serious visual defect. However, if it is imaged on the macula bilaterally this will result in a permanent central scotoma with vision reduced to 20/200 (peripheral acuity). This lesion can occur outside the danger zone of any other atomic effect except fall-out.

Director of Professional Services, Office of the Surgeon General.

Neither of these conditions requires civil defense planning for treatment. Recovery from flash blindness will take place in about half an hour. If the energy is high enough to produce a burn it is not painful, since the retina has no pain endings, and it requires no dressing. In severe burns it may be desirable to use steroids to reduce the inflammatory reaction and subsequent scarring of the retina but no emergency treatment is required. The temporary effect of flash blindness is probably a much greater hazard to effective civil defense action than is the permanent burn.

Civil defense efforts in regard to these conditions should be directed toward education to prevent flash blindness in at least one eye and the understanding that if it does occur normal vision will return shortly. Such understanding may be helpful in the prevention of panic.

CONFERENCE ON AGING

The recent Planning Conference on Medical Society Action in the Field of Aging may well have marked a stride forward by American medicine in its continuing efforts on behalf of the nation's aging population. As reported in the "Medicine at Work" section on page 769 in this issue of The Journal, the conference was attended by representatives from 46 state medical associations. This broad representation and the enthusiasm of the group discussions alike demonstrated the growing concern of America's doctors with the problems of the aging population. Again and again, three points were made clear by both speakers and discussants: that society can not isolate the aged, that medicine must provide leadership, and that coordinated action of all groups concerned is needed.

Anyone familiar with the growth of the problems and their various manifestations must recognize the need for a new and realistic attitude toward aging and the value of concerted action. Dr. Frederick C. Swartz, chairman of the Committee on Aging of the Council on Medical Service, well stated the need for full recognition of the other two concepts.

"It is not our aim," he said, "to break up the human family into groups because of some definable differences, such as age, but, rather, to keep the unit together by placing emphasis on their similarities.

"Above all," he continued, "the American Medical Association needs leadership in this field. Not only at the national level, but at the level of the states and counties. A type of leadership that binds medicine together and confidently points the way for all who would live long and happily. . . . Leadership that realizes that there is more to the practice of medicine than seeing patients, that composite ills or areas of possible improvement are also the responsibility of the doctor."

ORALLY AND PARENTERALLY ADMINISTERED RADIUM

Important in the list of iatrogenic diseases are the abnormalities of bone, especially sarcoma, that appear many years after the internal administration of radium.[1] Radium salts were given orally and intravenously in the treatment of numerous medical disorders during the period 1915-1930.[2] Their use seemed to be justified by the state of medical knowledge at the time.[3]

It is now evident that the late effects of internally deposited radioactive materials can be extremely grave, and they are of increasing concern to radiologists. A pilot study on patients who received thorium dioxide injections from 1930 to 1945 was started in Washington in 1955.[2] As was noted by Looney and Colodzin, hundreds of patients who have had radioactive materials in their bodies for long periods of time are still living. They are excellent sources of material for defining more precisely the safe levels of radioelements in the body.

It must not be assumed that everyone who has received radium or thorium internally will develop bone tumors, blood dyscrasias, or other diseases. If the familiar *post hoc, ergo propter hoc* fallacy is to be avoided, there must be comparisons between groups with and without lesions attributable to ionizing radiation. The almost limitless resources of university and government laboratories are available for the processing of the information so obtained; they include such facilities as low-background chambers for the examination of persons with low body-content of radium and new apparatus for the quick examination of teeth extracted by dentists. But the *sine qua non* is patients, with and without lesions attributable to radium, in sufficient numbers to permit meaningful comparisons between groups.

Attention is therefore directed to the appeal of Dr. Samuel D. Clark, elsewhere in this issue (page 761) of The Journal, for the cooperation of American physicians in a study of the late effects of radium poisoning. This study represents a cooperative effort of the Radioactivity Center of the Department of Physics at the Massachusetts Institute of Technology and the Division of Biology and Medicine of the Atomic Energy Commission. Competing on the one hand with roentgen rays and on the other hand with the radioactive isotopes produced by the uranium pile, radium seems to be nearing the end of its period of usefulness in therapy. Physicians cooperating in this study of its late effects can help to write the close of one of the most dramatic chapters in the history of medicine.

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1. Marshak, R. H.; Newburger, R. A.; and Eliasoph, J.: Skeletal Lesions Following Internally Administered Radium, J. A. M. A. **160**:41-44 (Jan. 7) 1956.
2. Looney, W. B., and Colodzin, M.: Late Follow-up Studies After Internal Deposition of Radioactive Materials. J. A. M. A. **160**:1-3 (Jan. 7) 1956.
3. New and Nonofficial Remedies, Chicago, American Medical Association, 1920, p. 238.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Second Session, 85th Congress

Construction

S. 3914, by Senator Thye (R., Minn.), pertains to the Hill-Burton Act extension and would authorize a $2,500,000 appropriation for grants to states to survey the need for renovation and modernization of public and nonprofit hospitals, diagnostic or treatment centers, rehabilitation facilities, and nursing homes. In its application, a state would have to designate a single agency which would utilize the services of the state Hill-Burton advisory council in making the survey and report to the surgeon general all information required by him. The funds would be allotted by a formula provided in the bill, but no allotment would be less than $25,000.

The bill also authorizes 50 million dollars for the fiscal year 1959 and 100 million dollars for each of the two succeeding years to be used as grants for the renovation and modernization of the above facilities. A formula for allotting funds to states is provided, but no state would receive less than $300,000.

The bill provides that, after passage, the surgeon general, with the approval of the Federal Hospital Council and the Secretary of the Department of Health, Education, and Welfare (HEW), would revise and supplement the regulations and equipment and general standards of priority for projects to be renovated and modernized. After such regulations have been issued, the states would be required to amend their state plans so as to qualify for the grants. The bill also provides for a five-year extension (through June 30, 1964) of both the regular hospital construction provisions and the categorical programs.

H. R. 12628, by Representative Williams (D., Miss.), would extend the Hill-Burton Hospital Construction Act. It provides for a five-year extension, until June 30, 1964, of both the regular hospital construction provisions and the categorical programs under the Hill-Burton Hospital Construction Act. This bill has now been passed and is Public Law 85-664.

H. R. 12694, by Representative Williams (D., Miss.), would authorize loans for the construction of hospitals and other medical facilities under the Hospital Survey and Construction Act. This bill has also been passed and is Public Law 85-589. This bill was introduced by the Chairman of the Health Subcommittee of the House Committee on Interstate and Foreign Commerce at the request of representatives of the Baptist Church which, because of its belief in separation of church and state, has not, until this year, availed itself of the grant program under the Hill-Burton Hospital Construction Act.

The bill provides for direct loans up to 40 years for the construction of hospitals and categorical facilities for which grants are provided under the Hill-Burton Act. The loans would bear an interest rate of 2.125%. The bill calls for interest equal to the current average yield on all outstanding marketable obligations of the United States plus 0.25%. The amount of the loan would be limited to the federal share of the estimated cost of construction of the projects. If the projects were being financed by both a loan and a grant, the aggregate amount could not exceed the federal share. If prior to repayment of the loan the project is transferred to a nonqualified operator or ceases to be nonprofit, the loan would become due immediately under the provisions of the bill. New funds are not authorized by the bill to carry out this loan program. Hill-Burton funds therefore would be used either for grants or loans.

H. R. 12752, H. R. 12753, H. R. 12754, H. R. 12755, and H. R. 12756, by Representatives Rains (D., Ala.), Addonizio (D., N. J.), Barrett (D., Pa.), Sullivan (D., Mo.), and Ashley (D., Ohio), respectively, would amend the Housing Act to increase the amount available for housing loans to educational institutions and hospitals and to authorize loans for building classrooms and other academic facilities.

Authorization would be increased for direct loans for college housing from the present 925 million to 1,425 million dollars. Of this sum, 125 million dollars, an increase of 100 million dollars, would be earmarked for loans to public and nonprofit teaching hospitals for the construction of nurses' and interns' housing.

The bill also provides for a direct loan program of 500 million dollars to provide 50-year loans at a maximum interest rate of 2.75% for the construction of classrooms, laboratories, and related facilities at educational institutions "offering at least a two-year program acceptable for full credit toward a baccalaureate degree." Loans could also be made for the rehabilitation or improvement of existing structures.

S. 4035, by Senator Sparkman (D., Ala.), would amend Housing Act relating loans to nursing homes. This bill provides extensive amendments to the housing laws. Two of the titles are of interest to

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From the Washington Office of the American Medical Association.

medicine. One amendment would authorize the Federal Housing Administration to insure mortgages for the construction or rehabilitation of proprietary nursing homes. The loans could be made up to $12,500,000 or 75% of the value of the completed property, whichever is less, and bear interest at 4.5%. The mortgagor would also be required to pay 0.5% insurance premium on the loan. The federal housing commissioner would be authorized to require any mortgagor to be regulated or restricted as to charges and methods of operation. If the mortgagor is a corporate entity he could regulate or restrict its capital structure and rate of return. In the latter case, in order to carry out this authority, the commissioner would be authorized to purchase stock or interest in the mortgagor, up to $100. Such interest could be redeemed by the mortgagor on the termination of the loan.

A nursing home is defined as "a facility which is or will be licensed or regulated by law, which provides continuous medical and nursing care to the long-term, convalescent, infirm, or elderly patient in a home-like atmosphere, furnishing facilities and comforts normally found in a patient's home, and which provides, in addition thereto, such specialized services, equipment, and safety features as may be required for the safe, proper and adequate care of patients at all times." In carrying out the provisions of the loan program to proprietary nursing homes, the federal housing commissioner would be required to consult and obtain the advice and recommendation of the Public Health Service.

The bill would also authorize an increase of 400 million dollars (to 1,325 million dollars) for making direct loans for college housing. Of the total authorization, 75 million dollars, an increase of 50 million dollars, would be earmarked for direct loans to hospitals for the construction of nurses' and interns' housing.

The bill also authorizes 250 million dollars for direct loans to educational institutions "offering at least a two-year program acceptable for full credit toward a baccalaureate degree" for the construction of classrooms, laboratories, and related facilities, including equipment, machinery, and utilities.

This bill was passed by the Senate, however, it failed to pass in the House under suspension of rules. A two-thirds majority is necessary, and the bill received 251 affirmative votes and 134 negative. The American Medical Association testified in favor of the nursing home loans provisions.

H. R. 13495, by Representative Herlong (D., Fla.), would provide special Hill-Burton hospitalization construction grants for federally impacted areas. This bill would provide 15 million dollars a year for four years, beginning July 1, 1958, to be used as grants to the states for the construction of hospitals in federally impacted areas. While the program would be operated under the regular Hill-Burton program, funds would be segregated into a special account, and the federal share would be 90% of the federal impact portion of the project. If the funds provided to carry out the terms of this bill were insufficient to finance all projects eligible under the bill, the surgeon general would be required to establish a system of priorities for each project.

The "federal impact portion" is defined as the percentage of the project equal to the percentage of the population attributable to a federal impact. "Federal impact" would be determined by the increase over the previous five years in the number of federally-connected persons residing in the area. To qualify as a federally impacted area, at least 30% of the population of a county or political subdivision would have to be federally connected, and during the five-year period preceding the application, the number of federally-connected persons would have to have increased by not less than 150%. A "federally-connected person" is defined as a person or his dependents employed on federal property, except members of the armed forces and their dependents. "Federal property" is land owned or leased by the United States and which is not subject to taxation by the state; it includes Indian lands and flying schools that provide flight training to members of the Air Force. It does not include, among other things, postoffices and low-rent housing projects or any other federal property not included under the federal aid to education in federally impacted area laws.

This bill was introduced in an attempt to secure funds for hospitals in the Cape Canaveral area which has experienced a tremendous population growth (from 19.000 to 90 000 persons), the major portion of which consists of federal employees.

Public Health Service

H. R. 12668, by Representative Huddleston (D., Ala.); H. R. 12685, by Representative Multer (D., N. Y.); H. R. 12821, by Representative Broomfield (R., Mich.); and S. 4076, by Senator Barrett (R., Wyo.), pertain to Cystic Fibrosis Research and are identical to H. R. 12331, by Representative Knutson (D., Minn.), discussed in The Journal, Aug. 23, 1958 issue, page 2085.

H. R. 12784, by Representative Osmers (R., N. J.), is identical to H. R. 6747, by Representative Harris (D., Ark.), and S. 1895, by Senator Hill (D., Ala.) and others. This bill is fashioned after a law enacted in 1954 which provides a method of establishing safe tolerances for residues of pesticide chemicals on raw agricultural commodities. It would prohibit the use of additives which have not been adequately tested to establish their safety, requiring chemical manufacturers to furnish to the Federal Drug Administration evidence that proposed uses of chemical food additives would be safe. It would exempt from pretesting those chemical additives now in use that are "generally recognized" as being safe but would not exempt those not "generally recognized" as safe regardless of the length of time they have been in use. The bill would also require that additives which may be toxic when used in excessive amounts must have safe levels of use established and must have "functional value."

H. R. 12875, by Representative Williams (D., Miss.), and H. R. 12876, by Representative Roberts (D., Ala.), would extend and amend the Health Research Facilities Act of 1956. This bill would extend the 30 million dollar a year grants-in-aid program for health research facilities for an additional three years (through June 30, 1962). This bill has passed both houses and is awaiting the President's signature.

H. R. 13254, by Representative Williams (D., Miss.), pertains to chemical food additives and is similar to H. R. 6747, by Representative Harris (D., Ark.), and S. 1895, by Senator Hill (D., Ala.), and would amend the Federal Food, Drug, and Cosmetic Act to prohibit the use of additives in food which have not been adequately tested to establish their safety.

The procedure of this bill is to define a food additive and to establish a procedure whereby the safety of such additive may be established before its use. A "food additive" is defined as "any substance, the intended use of which results . . . in its becoming a component or otherwise affecting the characteristic of any food, including any substance intended for the use in producing or manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food; including any source of ionizing radiation intended for any such use, if such substance is not generally recognized . . . to be safe." Exempted from such definition is a pesticide to be used on raw agricultural commodities. The term "safe" is defined to mean "without hazard to the health of man or animal." The bill would hold that all food additives would be deemed to be unsafe unless their use conforms to the terms of an exemption or regulation issued by the Secretary of the HEW.

The bill provides for a procedure for obtaining a regulation from the Secretary of the HEW setting forth the limits of use and for appeals to the U. S. Circuit Court of Appeals from an adverse ruling of the Secretary. Experts would be selected by the National Academy of Sciences. Within 60 days of such referral, the Committee would certify its report and recommendations to the Secretary setting forth the reasons for the recommendations.

H. R. 13517 and H. R. 12834, by Representative McCarthy (D., Minn.), and H. R. 12871, by Representative Kean (R., N. J.), pertain to Maternal and Child Health and Welfare and are similar to S. 3504, by Senator Neuberger (D., Ore.), discussed in THE JOURNAL, July 19, 1958, page 1520. This bill would increase the annual authorization for appropriations for maternal and child health care from $16,500,000 to $21,500,000 and increase the authorization for appropriations for hospital and medical care for crippled children from 15 million to 20 million dollars. It would also increase the annual appropriation for child welfare services from 12 million to 17 million dollars.

S. 4193, by Senator Hill (D., Ala.) and Senator Smith (R., N. J.), is similar to H. R. 13254, by Representative Williams (D., Miss.), and would amend the Federal Food, Drug, and Cosmetic Act to prohibit the use of additives in food which have not been adequately tested to establish their safety. While the language of this bill differs from that of H. R. 13254, the purposes of both are essentially the same. The major difference is that S. 4193 eliminates the provision of an advisory committee of experts which would hear appeals from adverse rulings by the Secretary of the HEW. H. R. 13254 was reported, on July 28, by the House Interstate and Foreign Commerce Committee of containing identical language to S. 4193.

H. R. 13524, by Representative McCarthy (D., Minn.), pertains to White House Conference on Aging and is identical to H. R. 9822 by Representative Fogarty (D., R. I.) discussed in THE JOURNAL March 15, 1958, page 1338.

S. 3694, by Senator Watkins (R., Utah) anc others, pertains to sanitation facilities for Indian and is identical to H. R. 12100, by Representativ Rhodes (R., Ariz.), as reported in THE JOURNAI Aug. 23, 1958, page 2085. The bill has passed th House and on Aug. 14 has been favorably reporte in Senate.

Labor

H. R. 13507, by Representative Teller (D., N. Y.) pertaining to welfare and pension plans disclosur is similar to H. R. 13223, by Representative Roosevelt (D., Calif.), and S. 2888, by Senator Douglas (D., Ill.) and others, S. 3044, by Senator Mundt, and H. R. 10102, by Representative Berry (Republicans, S. D.), S. 3097, by Senator Smith, and H. R. 10272, by Representative Frelinghuysen (Republicans, N. J.), and H. R. 10236, by Representative Holt (R., Calif.). H. R. 10102 was discussed in THE JOURNAL, April 26, 1958, page 2188.

This bill would establish the type of information concerning employee welfare benefit plans that would be required to be made available to participants and beneficiaries of such plans. An "employee welfare benefit plan" is defined as "any plan, fund or program . . . established by an employer or by an employee organization, or by both, for the purpose of providing its participants or their beneficiaries, through the purchase of insurance or otherwise, medical, surgical or hospital care or benefits, in the event of sickness, accident, disability, death or unemployment." The bill provides that a description of the plan and annual financial reports containing specified information shall be made available for examination by any participant or beneficiary in the principal office of the plan. A participant or beneficiary has the right to request a copy of the plan and latest annual report, and the administrator of the plan would be required to mail it to him within 30 days. The administrator of the plan would also be required to file with the Secretary of Labor two copies of the description of the plan and annual reports to be made available for examination in the public document room of the Department of Labor. Violation of the disclosure sections would make an individual liable to a fine of up to $1,000 or imprisonment of up to six months. If an administrator refuses or fails to fill the request of a participant for information contained in the plan or annual reports, the administrator could, at the court's decision, become liable to the participant or beneficiary in the amount of $50 a day from the date of refusal or failure.

Unlike S. 2888, which has passed the Senate, this bill does not require the registration of welfare benefit plans with the Secretary of Labor. Nor does it provide him with authority to investigate or enjoin any activities or practices of officials of the welfare benefit plans. It is noted that the House amended S. 2888 to conform to provisions of H. R. 13507.

Taxes

H. R. 12725, by Representative Simpson (D., Pa.), on a tax deferment for self-employed is similar to H. R. 10, the Jenkins-Keogh Bill, as it passed the House. Unlike H. R. 10, which would allow a deduction from the annual income of 10% or $2,500, whichever is less, this bill allows 10% or $3,000, whichever is less.

H. R. 12909, by Representative Fogarty (D., R. I.), and H. R. 13125, by Representative Libonati (D., Ill.), pertains to tax deferment for self-employed and is identical to H. R. 9 and 10 (Jenkins-Keogh bills).

H. R. 13583, by Representative Fascell (D., Fla.), is identical to H. R. 10, the Jenkins-Keogh bill, as it passed the House. The bill did not pass the Senate; however, chances for its passage next session look extremely favorable. This bill would permit a self-employed individual to deduct from adjusted gross income an amount equal to 10% of net earnings from self-employment or $2,500 annually, whichever is the lesser. No deductions would be allowed for any taxable year after the individual attains age 70. The maximum in an individual's lifetime would be 20 times the maximum annual deduction allowable, but in no case could it be more than $50,000. For individuals aged 50 or older on Jan. 1, 1959, the annual limit would be increased by one-tenth for each full year in excess of 50, as determined on Jan. 1, 1959. Thus, for an individual aged 60 on that date, the annual limit on his deduction would be 20% of self-employment income up to a maximum of $5,000.

A special limitation is imposed on individuals who have previously received benefits under an employer's pension, profit-sharing, or stock bonus plan. Included in such plans would be a pension or retirement plan (including military) established by the United States or any political subdivision thereof. Such an individual would have his lifetime limit (20 times his allowable annual deduction) reduced by the number of years he was covered by such retirement plan. Thus, an individual covered under a civil service retirement program for 15 years would be allowed a maximum lifetime deduction of five times his annual allowable deduction. No individual would be allowed a deduction in any year in which he receives any benefit under any of the above pension plans.

A self-employed individual is defined as one who is subject to the tax on self-employment income under the social security law—doctors and clergymen. In addition, self-employed individuals who also receive wages up to $4,200, which are subject to the employee tax under the social security program, would be eligible.

Payments may be made to purchase a restricted retirement policy from a domestic insurance company or to build up a restricted retirement fund at a bank which must be the trustee (custodian accounts provided in original H. R. 10 have been eliminated). No life insurance benefits could be provided under a restricted retirement policy after age 70 or older. Payments under such a policy must begin by 70½ years. Annuities may be only life annuities on the insured or joint and survivor annuities on the insured and his spouse. Payments from a restricted retirement fund also must begin by 70½ years of age and be completed by age 80. Certain restrictions are placed on investments on restricted retirement funds.

Benefits received after age 65 are to be considered as part of gross income and subject to the regular tax unless a lump sum payment is received. In such a case the tax would be computed by finding the increase in tax resulting from including one-fifth of the total payment in gross income and multiplying the tax increase by five. If an individual, before achieving age 65, "takes down" more than $2,500, the tax would be 110% of the aggregate increase in tax, had the amount been received equally in the taxable year and the four preceding years. If the amount is less than $2,500, the tax would be 110% of the tax attributable to the "take down."

Where an individual dies, the amount of death benefits equal to the cash surrender value of the restricted retirement policy at the time of death would be treated as income to the beneficiaries.

The life insurance benefits would not be considered part of their gross income. Amounts paid to decedent's beneficiaries under the restricted retirement trust fund would be considered taxable as gross income.

H. R. 13743, by Representative Holt (R., Calif.), would amend the Internal Revenue Code to provide, among other things, a tax deduction of all medical expenses incurred by a taxpayer for himself, his spouse, or a dependent. It also would allow an annual deduction up to $900 of all amounts paid a college as tuition or fees for the education of the taxpayer, his spouse, or a dependent.

Miscellaneous

H. R. 12612, by Representative Kilday (D., Texas), pertains to federal workers payroll deduction for health insurance. It is virtually identical to H. R. 10694, by Representative McFall (D., Calif.), discussed in The Journal, June 7, 1958, page 747.

S. 4055, by Senators Sparkman and Hill (Democrats, Ala.), would establish a program of Civil Defense survival depots to provide subsistence for civilian population evacuated from potential target areas in the event of attack. The purpose of this bill is to establish survival depots to provide housing, clothing, and feeding of individuals who would evacuate heavily populated areas in the event of war. The bill would establish an Emergency Survival Board composed of the director of the Office of Defense and Civilian Mobilization, who would be chairman, the Secretary of Defense, and the Secretary of Agriculture. The board would be responsible for (1) determining which cities would be likely targets; (2) the danger zone from which persons would be evacuated; (3) the number of such evacuees; and (4) the areas to which evacuees would be taken. In such evacuation areas the board would establish survival depots consisting of warehouses and other facilities, including sanitation and emergency water supplies, as the board would deem necessary. The depots would contain tents, cots, clothing, medical supplies, and foods from surplus government stocks. Stocks of food and fiber to be used in building up supplies would be obtained from the Commodity Credit Corporation or from domestic sources. The board would contract with individuals and organizations in the evacuation area for the preparation and processing of the food and fiber. The supplies would be rotated from time to time as the board deems advisable. In carrying out the purposes of the bill, the board would be expected to cooperate with the American Red Cross, state and local governments, and other groups which would be of assistance in establishing the program.

H. R. 12581, by Representative Edmondson (D., Okla.), H. R 13089, by Representative Dellay (D., N. J.), and H. R. 13420, by Representative Blatnik (D., Minn.), are similar to S. 3576, by Senator Humphrey, and H. R. 11714, by Representative Blatnik (Democrats, Minn.), and H. R. 12166, by Representative Lankford (D., Md.), and would amend the Water Pollution Control Act to increase one of the limitations on grants for construction from $250,000 to $500,000 and for other purposes.

H. R. 13420, which was favorably reported by the House Committee, is identical to H. R. 11714 (*J. A. M. A.* 167:1520 [July 19]) except that it requires the surgeon general to take action to insure that contractors pay wages equal to those prevailing in the local community as provided in the Davis-Bacon Act.

S. 4160, by Senator Bennett (R., Utah), would establish a program of loans for the purpose of encouraging and assisting individuals to obtain a college education.

The bill would authorize the establishment of a 75 million dollar revolving fund from which loans of up to $2,000 per year could be made to students pursuing a course toward a baccalaureate degree or such postgraduate degrees in the individual's chosen academic area, except for such special cases as the Commissioner of Education may designate.

To qualify for a loan, the applicant would have to be certified as acceptable by the college. The loan would be made without security on the signature of the borrower. (If the applicant is a minor, the note would have to be endorsed by his parent or guardian.) The loan, which would bear interest equal to the average annual rate on United States obligations, would be due and payable five years after the borrower ceases a full-time course of study. Twenty-five per cent of the loan would be cancelled for individuals majoring in the physical sciences if they graduate in the upper 25% of their class.

S. J. Res. 199, by Senator Hill (D., Ala.), is similar to H. J. Res. 698, by Representative Fogarty (D., R. I.), and would establish the National Advisory Council for International Medical Research and to establish a National Institute for International Medical Research. The purpose of this joint resolution is to encourage and support international studies, experiments, and research into the causes diagnosis, treatment, and control of physical and mental diseases. It would also authorize research in rehabilitation of the physically handicapped, provide for international exchange of knowledge and information resulting from research, and provide for the exchange, between the United States and other countries, of research workers for training and for carrying out research in physical diseases. The Secretary of HEW would carry out the purposes of the joint resolution and would be authorized to utilize the Public Health Service and the Office of Vocational Rehabilitation and other agences.

The resolution would establish a National Institute of International Medical Research to carry out such functions, including grants for research and research training in facilities outside the United States, as may be assigned by the surgeon general. The resolution also would establish a National Advisory Council on International Medical Research. This council, whose chairman would be the surgeon general, would be composed of 18 members, 16 of whom, appointed by the Secretary, would be from the fields of medical research, teaching, medical, or biological science, rehabilitation, education, or public and international affairs. Eight of the 16 members would be leading experts in the field of international medical research. One of the members would be a representative of the Secretary of State and the Director of the Office of Vocational Rehabilitation would be an ex officio member. The council would meet at least three times a year. No international research or training project could be approved, except after review and recommendation by the Council. The Secretary, through the surgeon general, would be required to make provision for coordination of the work of the council and the National Advisory Health Council and other advisory councils concerned with research and rehabilitation. The resolution specifically forbids the support of public health programs of an operational nature and limits activities to research matter. The bill authorizes 50 million dollars annually to carry out its purposes.

Veterans Affairs

H. R. 12636, by Representative Moulder (D., Mo.), is similar to H. R. 12873 and H. R. 12874, both by Representative Moulder, and would provide that the death, regardless of cause, of any veteran of World War I would be conclusively presumed to be service-connected if (1) the veteran has been rated for 12 or more years as totally disabled from a service-connected disability, (2) if he has been rated as totally disabled for a service-connected disability for a 10-year period following his 50th birthday, or (3) if the veteran has been rated as totally disabled for a service-connected disability after he has reached his 62nd birthday. Presumably, the purpose of this bill is to provide increased benefits for the widows and dependents of qualifying veterans.

H. R. 13720, by Representative Beckworth (D., Texas), would amend the Veterans' Benefits Act of 1957 to authorize the granting of hospital care to any veteran in need of such care. This bill would make any veteran eligible for hospital care in VA facilities who submitted competent evidence of his need for hospital care.

Social Security

H. R. 12701, by Representative Flood (D., Pa.), is identical to H. R. 7086, by Representative Blatnik (D., Minn.). It would provide for a pay-as-you-go national program of social security to be supported by "an equitable gross income tax." In addition to providing retirement payments to all persons in the United States at the age of 60, it would provide similar benefits for disabled persons, certain children, and for certain cases where the female heads the family.

H. R. 12911, by Representative Moore (R., W. Va.), would increase social security benefits and tax rate. This bill is identical with H. R. 12493, by Representative Boggs (D., La.), reported in The Journal, Aug. 23, 1958, page 2085.

H. R. 12936, by Representative Lesinski (D., Mich.), would amend the Social Security Act to provide, among other things, increased monthly benefits. This bill would amend the Social Security Act by lowering the retirement age for both men and women to age 60 and increase present monthly money benefits by 15%. To finance these increases, the tax rate on the present wage base of $4,200 would be increased. On Jan. 1, 1959, the tax would be increased for the self-employed from the present $141.75 to $236.25; in 1975 the tax would reach $378.00. For the employed, the present tax of $94.50 would be increased to $157.50 on Jan. 1, 1959, and by 1975 the employer and employee would each pay $252.00 under the proposed changes.

H. R. 12977, by Representative Bennett (R., Mich.), would amend the Social Security Act to provide, among other things, medical benefits for certain social security beneficiaries as follows:

Hospital, Nurse-Home, and Surgical Benefits.—A program of hospital, nursing home, and surgical benefits would be initiated for an individual (and spouse) who is eligible for retirement benefits under OASI. The bill would provide up to 60 days of hospitalization in any 12-month period in semi-private accommodations and nursing home care up to a combined total of 120 days in the same period. It would also cover the cost of surgical care (not elective surgery) with freedom by the beneficiary to choose a surgeon of his choice, provided the surgeon is certified by the American Board of Surgery or is a member of the American College of Surgeons (except in cases of emergency.) Unlike the Forand Bill, H. R. 9467, this bill does not provide for oral surgery performed by a dentist nor does it provide for minor surgery in a doctor's office, except in cases of emergency.

Hospital care could be received only in those hospitals which has entered into an agreement with the government. Eligible nursing homes would be those where skilled nursing care could be obtained and which are operated in connection with a hospital or in which nursing care and medical services are prescribed by, or performed under the general direction of persons licensed to practice medicine or surgery in the state. Treatment in a tuberculosis or a mental hospital would be specifically precluded. The hospital would not receive payment from the OASI trust fund if payment were due under a workmen's compensation law or under a plan of any state or the United States. In the event that the OASI trust fund paid for such hospital or other medical services and it was subsequently determined that a workmen's compensation or other state or federal plan is liable for such expenses, then the United States would be subrogated to all rights of the beneficiary or the provider of services to whom payment had already been made. Physicians would be paid in amounts as specified in agreement made with the Secretary of HEW or as prescribed in regulations promulgated by him.

The Secretary of HEW could utilize the services of private nonprofit organizations which (*a*) represent qualified providers of hospital, nursing home, or surgical services; or (*b*) operate voluntary health insurance plans. These nonprofit groups could be utilized as fiscal agents but only to the extent that the Secretary of HEW "can make satisfactory arrangements with them and to the extent he determines such utilization would contribute to the effective and economic administration.

To qualify for the above medical benefits a person would have to be entitled to OASI retirement benefits and have an income (including the income of his spouse and monthly insurance benefits received under the Social Security Law) of less than $2,400 in the preceding 12-month period. Such an individual's spouse would also be entitled to dependents' benefits under the Social Security Law, including widows, and would be entitled to the medical benefits. All regulations to implement the provisions of this bill would be prescribed by the Secretary of HEW. The Forand bill provides for a nine-man National Advisory Health Council to consult with the Secretary and presumably aid him in the drafting of regulations. The bill would prohibit the Secretary from having supervision or control over the practice of medicine or administration and operation of hospitals and nursing homes.

Redefine Disability.—Under existing law disability is defined as inability to engage in any substantial gainful activity by reason of a medically determinable physical or mental impairment which can be expected to result in death or to be of a long-continued and indefinite duration. This bill would change the definition to read: "inability of an individual by reason of any medically determinable physical or mental impairment which can be expected to be permanent or of long-continued and indefinite duration, to engage in a substantial gainful activity which is the same as or similar to the occupation or employment last performed by him on a regular basis before the onset of such impairment.

Liberalize Coverage Requirements for Disability Benefits. The bill also would change the coverage requirements for the disability freeze and for disability cash payments. Among other coverage requirements under existing law, a disabled individual must have been in covered employment for 20 out of the 40 quarters preceding the onset of disability. This bill would reduce the requirement to 15 quarters of coverage during the 30-quarter period prior to the onset of disability.

Retirement Age.—Under existing law, the retirement age is 65, although women may receive reduced benefits at age 62. This bill would reduce the retirement age for women to 60 and for men to 62.

Increased Benefits.—The maximum primary benefit would be raised from the present $108.50 per month to $150.60; the minimum primary benefit would be increased from the present $30 to $50; while the maximum family benefit would be increased from $200 to $305.

Wage Base and Tax Rate Increase.—To pay for these new and increased benefits, the wage base upon which social security taxes are paid would be increased from the present $4,200 to $6,000. The tax rate for the self-employed would be increased in 1959 from the present 3.375% to 6.375%; the employee and employer tax rate would be increased from the present 2.25% each to 4.25%. For the period 1961 to 1964, these taxes would be increased from the presently scheduled 4.125% to 7.125% for the self-employed and from 2.75% to 4.75% for the employer and employee. By 1975 these taxes would be increased from the presently scheduled 6.375% to 9.375% for self-employed and from 4.25% to 6.25% for the employer and employee.

On Jan. 1, 1959, the tax would be increased for the self-employed from the present $141.75 to $382.50; in 1975 the tax would reach $562.50. For the employed, the present tax of $94.50 would be increased to $255.00, and by 1975 the employer and employee would each pay $375.00.

H. R. 12979, by Representative Green (D., Ore.), would amend the Public Assistance provisions of the Social Security Act to provide assistance for temporarily disabled individuals by changing that section of the Social Security Act which provides public assistance for the permanently and totally disabled by striking the term "permanently and totally" wherever it occurs. It would also remove any individual from eligibility for benefits "who has not been disabled for a period of at least 30 days." The effect of this bill would be to establish a program of public assistance for the temporarily disabled.

H. R. 12986, by Representative Ullman (D., Ore.), would amend the Social Security Act to provide, among other things, an increase in the wage base and tax rate and to increase benefits payable thereunder.

This bill would (1) provide for increased benefits under social security; (2) reduce the retirement age for women to age 62; (3) increase widows' insurance benefits from 75% to 85% of the primary benefits; and (4) provide insurance for the dependents of disability insurance beneficiaries. To meet the cost of these liberalizations, the wage base upon which social security taxes are paid would be increased from the present $4,200 to $6,000 and the tax rate would be increased for the self-employed beginning in 1959 from the present 3.375% to 4.125%, with periodic increases so that by 1975 the self-employed would be paying 7.125% on the $6,000 wage base. The taxes for the employee and employer would be increased beginning in 1959 from the present 2.25% to 2.75%, with periodic increases so that by 1975 each would be paying 4.75% on the $6,000 wage base.

On Jan. 1, the tax would be increased for the self-employed from the present $141.75 to $247.50; in 1975 the tax would reach $427.50. For the employed, the present tax of $94.50 would be increased to $157.50, and by 1975 the employer and employee would each pay $285.00 under the proposed changes.

S. 4121, by Senator Case (R., N. J.), and others would amend the Social Security Act to increase the benefits payable under the old-age, survivors, and disability insurance program. This bill would increase the monthly social security benefits by increasing the social security wage base and tax rate and by accelerating the periodic increases provided in existing law. A table for determining benefits would be substituted for the formula contained in the law. Minimum benefits would be increased from $30 to $33 monthly; maximum individual benefits would be increased from the present $108.50 to $119.40, and the maximum family benefit would be increased from the present $200 to $260.80. To meet the cost of these increased benefits, the wage base would be increased from the present $4,200 to $4,800. The tax rate for self-employed individuals beginning on Jan. 1, 1959, would be raised from the present 3.375% to 3.75% (from present $141.75 to $180). Beginning in 1960 and every four years thereafter, these taxes would be increased periodically so that beginning in 1972 the self-employed would be paying 6.75%. Existing law provides that in 1975 the self-employed would be paying 6.375%. Thus, in 1972 the self-employed individual would pay a tax of $324. Both the employee and the employer would have their tax rate increased in 1959 from the present 2.25% to 2.5% (from $94.50 to $120). Beginning in 1960 and every four years thereafter, the rate would be increased by 0.5% until 1972, when the rate for the employee and employer would be 4.5% for each. Thus, beginning in 1972, the employee and employer each would be paying $216.

H. R. 13205, by Representative Byrd (D., W. Va.), would liberalize disability benefits requirements. This bill is identical to S. 1812, by Senator Revercomb (R., W. Va.), which would amend the coverage requirements for applicants for disability benefits under the Social Security Act. Under the present law before an applicant can receive disability payments, he must be fully insured (40 quarters of coverage or one-half the quarters since 1950, with a minimum of six quarters) and have been covered 1½ years out of 3 years and 5 out of the 10 years immediately prior to the onset of his disability. This bill would permit disability payments to be made if the applicant had "at lease one quarter of coverage."

H. R. 13206, by Representative Byrd which is identical to S. 1811, by Senator Revercomb, and would redefine "disability" under Social Security as used in the disability benefits provisions of the Social Security Act. Under the present definition, an applicant for disability benefits is eligible only if he is found unable to engage in any substantial gainful activity. Under this proposal, if, as a practical matter, the applicant could not obtain employment, he would be eligible for disability payments.

H. R. 13308, by Representative Moulder (D., Mo.), would amend Title I of the Social Security Act to increase the amount of federal funds payable thereunder to states which have approved plans for old-age assistance. This bill would increase the maximum toward which the federal government may contribute for aid to the needy aged from the present $60 to $75 and would change the formula so that the federal contribution could be larger. Under the present law, the maximum amount the federal government can contribute is $39 of the $60 limit; under this proposal the federal contribution could be a maximum of $49.17 of the $75 limit. In addition to the above funds, the federal government would pay one-half of the states' administrative costs in carrying out the old-age assistance program. The most notable feature of the bill is that it would eliminate vendor medical payments for this public assistance program. Presumably, the recipients would be expected to pay for their medical care from their benefits. The bill does not amend the remaining three programs of public assistance—aid to dependent children, the blind and the permanently and totally disabled.

H. R. 13549, by Representative Mills (D., Ark), and H. R. 13550, by Representative Reed (R., N. Y.), would liberalize the social security law by increasing benefits and to provide actuarial soundness of the trust funds by increases in the wage base and tax rate and the acceleration of periodic tax increases.

MEDICINE AND THE LAW

TORT LIABILITY OF CHARITABLE HOSPITALS TO PATIENTS

In 1876, the Supreme Court of Massachusetts, in *McDonald v. Massachusetts General Hospital,* 120 Mass. 432, first announced the rule in the United States that a charitable hospital is not liable for injuries caused by the negligence of its agents and employees. The decision was based upon an English case, *Holliday v. St. Leonard's,* 11 C.B., N.S. 192 (1860), which in turn was based upon the dictum in an earlier English case, *Duncan v. Findlater,* 7 Eng. Reprint 934 (1839). However, the dictum in the *Duncan* case had been overruled in 1866 in *Mersey Docks Trustees v. Gibbs,* 11 Eng. Reprint 1500, and the *Holliday* case had been reversed in 1871 *in Foreman v. Mayor of Canterbury,* L.R. 6 Q.B. 214. Although the *Holliday* case had been reversed and the dictum of the earlier case overruled even before the date of the Massachusetts decision, charitable hospitals have nevertheless been held to be immune by many courts throughout the United States as a result of this decision.

A Rhode Island court in 1879 chose to reject the doctrine of immunity, and in *Glavin v. Rhode Island Hospital,* 12 R.I. 411, a charitable hospital was held liable for injuries caused by the negligence of an intern. But shortly thereafter, the Rhode Island legislature enacted a statute granting immunity and thereby repudiating the *Glavin* decision.

Since the *McDonald* decision in 1876, the general rule in the United States has been that of immunity or qualified immunity. However, in recent years the trend has been toward the liability of charitable hospitals for the torts of their employees and agents. In the following states the courts have held charitable hospitals to be fully liable for the torts of their employees and agents the very first time the issue of liability arose: Delaware (1951), Minnesota (1920), New Hampshire (1939), North Dakota (1946), Rhode Island (1879) (overruled by statute), and Vermont (1950).

In the following states, full liability was adopted as the rule even though the courts of these states had previously followed variations of the rule of immunity or qualified immunity: Arizona (1951), California (1951), Iowa (1950), Kansas (1954), New Jersey (1958), New York (1957), and Ohio (1956).

Despite the trend of the state courts in reversing their previous rules of immunity, the courts of Pennsylvania (1958) and Connecticut (1957) have noted the action of other courts but have refused to disturb their rules of immunity on the ground that such action is the prerogative of the legislature.

In 1952, the Alaska court considered the question of liability for the first time and held a charitable hospital liable to a patient who payed only part of the cost of his hospitalization. In 1954, a federal court declared that the rule of charitable immunity does not apply in Alaska. Mississippi (1951), Washington (1953), and Idaho (1956) have held charitable hospitals liable to paying patients, the latter two states reversing previous holdings. Although these cases were limited to facts involving paying patients, the court's decision in each instance left the impression that a similar decision would be reached with regard to nonpaying patients.

The names and citations of the cases referred to above are shown in the summary which follows this discussion.

The landmark case which appears to have given the current trend toward liability its great impetus is a District of Columbia, Court of Appeals decision, *President and Directors of Georgetown College v. Hughes,* 130 Fed. (2d) 810, 76 App. D. C. 123 (1942). Three of the judges who participated in the decision (Rutledge, Miller, and Edgerton, J. J.) held that charitable institutions enjoy no immunity from tort liability. The three other judges (Groner, Ch.J., Stephens, and Vinson, J. J.) expressed no opinion on the question of complete liability and concurred only on the issue raised by the facts of the case that charitable corporations are responsible for the negligence of their servants causing injury to strangers. These words in the opinion written by Associate Justice Rutledge seem to summarize the trend and philosophy of current judicial thinking in tort law as it applies to charitable institutions:

> The rule of immunity is out of step with the general trend of legislative and judicial policy in distributing losses incurred by individuals through the operation of an enterprise among all who benefit by it rather than in leaving them wholly to be borne by those who sustain them. The rule of immunity itself has given way gradually but steadily through widening, though not too well or consistently reasoned, modifications. It is disintegrating. Each modification has the justification that it is a step in result, if not in reason, from the original error toward eventual correction. . . .
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> . . . It does not recompense injured persons that the loss inflicted is by charitable institutions. . . . We do not believe the survival of charities will turn on whether they must answer for their wrongs to persons they are formed to help. There may be some added expense of operations. It may be no more than the cost of litigating these claims over and over, for the issue will not be down. Insurance must be car-

ried to guard against liability to strangers. Adding beneficiaries cannot greatly increase the risk or the premium. This slight additional expense cannot have the consequences so frequently feared in judicial circles, but so little realized in experience. To offset the expense will be the gains of eliminating another area of what has been called "protected negligence" and the anomaly that the institutional doer of good asks exemption from responsibility for its wrong, though all others must pay.

In the absence of legislative action to the contrary, it appears that the rule of charitable immunity is likely to disappear in the not too distant future.

Tort Liability of Charitable Hospitals to Patients in The United States

Alabama	Liable to paying patient. Tucker v. Mobile Infirmary Assn., 68 So. 4, 191 Ala. 572 (1915). No reported court decisions involving charity patients although the Tucker case may be interpreted to indicate full liability.
Alaska	Full liability. Moats v. Sisters of Charity, 13 Alaska 546 (1952); Tuengel v. Sitka, 118 F. Supp. 399 (1954).
Arizona	Full liability. Ray v. Tucson Medical Center, 230 P. (2d) 220, 72 Ariz. 22 (1951).
Arkansas	Immune from liability to nonpaying patients except for negligence in the selection and retention of employees. Arkansas Midland R. Co. v. Pearson, 135 S. W. 917, 98 Ark. 399 (1911). No reported court cases involving paying patients.
California	Full liability. Malloy v. Fong, 232 P. (2d) 241, 37 Cal. (2d) 356 (1951); Section 1714 California Civil Code.
Colorado	Execution under a judgment rendered against a charity in a tort action cannot be levied on property which is part of the charitable trust. St. Mary's Academy v. Solomon, 238 P. 22, 77 Colo. 463 (1925). Liability within limits of insurance coverage. O'Connor v. Boulder Colorado Sanitarium Assn., 96 P. (2d) 835, 105 Colo. 259 (1939).
Connecticut	Immune from liability except for negligence in the selection and retention of employees. Hearns v. Waterbury Hospital, 33 A. 595, 66 Conn. 98 (1895); McDermott v. St. Mary's Hospital, 133 A. (2d) 608 (1957).
Delaware	Full liability. Durney v. St. Francis Hospital, 83 A. (2d) 753 (1951).
District of Columbia	Question of liability not authoritatively decided. Dicta expressing full liability in Court of Appeals decision, President and Directors of Georgetown College v. Hughes, 130 Fed. (2d) 810, 76 App. D.C. 123 (1942). A trial court held that hospital is immune from liability for injuries sustained by a patient through the negligence of its nurses where there is no claim that they were negligently selected by the hospital or that hospital itself was negligent. White v. Providence Hospital, 80 F. Supp. 76 (1943).
Florida	Liable to paying patients. Nicholson v. Good Samaritan Hospital, 199 So. 344, 145 Fla. 360 (1941). No reported cases involving charity patients although the doctrine of full liability is dicta in Wilson v. Lee Memorial Hospital, 65 So. (2d) 40 (1953).
Georgia	Liable for negligence in selecting and retaining employees; execution on a judgment recovered for such negligence is not limited to nontrust assets. Liable to paying patient for negligence of employees even though they have been selected with due care, but judgment can be executed only from income derived from paying patients or insurance. Morton v. Savannah Hospital, 6 S.E. 887, 148 Ga. 438 (1918).
Hawaii	No reported cases.
Idaho	Liable to paying but not to nonpaying patients. Wheat v. Idaho Falls Latter Day Saints Hospital, 297 P. (2d) 1041 (1956).
Illinois	Liable within limits of liability insurance and other nontrust assets. Moore v. Moyle, 92 N.E. (2d) 81, 405 Ill. 555 (1950).
Indiana	Immune from liability to charity and paying patients unless hospital failed to exercise reasonable care in selecting and retaining employees who committed tort, in which case there is no immunity. St. Vincent's Hospital v. Stine, 144 N.E. 537, 195 Ind. 350 (1924).
Iowa	Full liability. Haynes v. Presbyterian Hospital, 45 N.W. (2d) 51, 241 Iowa 1269 (1950).
Kansas	Full liability. Noel v. Menninger Foundation, 267 P. (2d) 934 (1954).
Kentucky	Complete immunity from liability. Emery v. Jewish Hospital Ass'n., 236 S.W. 577, 193 Ky. 400 (1921).
Louisiana	Immune from liability. Jordan v. Touro Infirmary, 123 So. 726 (1922). But immunity of assured unavailable as defense by insurer. Stamos v. Standard Accident Ins. Co., 119 F. Supp. 245 (1954).
Maine	Immune from liability. Jensen v. Maine Eye & Ear Infirmary, 78 A. 898, 107 Me. 408 (1910).
Maryland	Immune from liability. Howard v. South Baltimore General Hospital, 62 A. (2d) 574 (1948). Exception: liability within limits of insurance coverage (provided by statute); Gorman v. St. Paul Fire & Marine Ins. Co., 121 A. (2d) 812 (1956).
Massachusetts	Immune from liability. McDonald v. Massachusetts General Hospital, 21 Am. Rep. 529, 120 Mass. 432 (1876).
Michigan	Immune from liability. Pepke v. Grace Hospital, 90 N.W. 278, 130 Mich. 493 (1902).
Minnesota	Full liability. Mulliner v. Evangelischer Diakonniessenverein, 175 N.W. 699, 144 Minn. 392 (1920).
Mississippi	Liable to paying patients. Mississippi Baptist Hospital v. Holmes, 55 So. (2d) 142 (1951). Liable for negligence in the selection and retention of employees. Mississippi Baptist Hospital v. Moore, 126 So. 465, 156 Miss. 676 (1930).
Missouri	Immune from liability. Dille v. St. Luke's Hospital, 196 S.W. (2d) 615, 355 Mo. 436 (1946).
Montana	No reported cases.
Nebraska	Immune from liability. Cheatham v. Bishop Clarkson Memorial Hospital, 70 N.W. (2d) 96, 160 Neb. 297 (1955); Muller v. Nebraska Methodist Hospital, 70 N.W. (2d) 86, 160 Neb. 279 (1955).
Nevada	Immune from liability to nonpaying patients. Springer v. Federated Church of Reno, 283 P. (2d) 1071 (1955). No reported cases involving paying patients.
New Hampshire	Full liability. Welch v. Frisbie Memorial Hospital, 9 A. (2d) 761, 90 N.H. 337 (1939).
New Jersey	Full liability. Collopy v. Newark Eye & Ear Infirmary, 141 A. (2d) 276 (1958).
New Mexico	No reported court decisions.
New York	Full liability. Bing v. Thunig, 143 N.E. (2d) 3, 163 N.Y.S. (2d) 3 (1957).
North Carolina	Immune from liability. Williams v. Union County Hospital Assn., 75 S.E. (2d) 308, 237 N.C. 395 (1953). Exception: liable f[illegible] and retention of employees. [illegible] spital Inc., 75 S.E. (2d) 303, 23 [illegible]
North Dakota	Full liability. Rickbell v. Grafton Deaconess Hospital, 23 N.W. (2d) 247, 74 N.D. 525 (1946).
Ohio	Full liability. Avellone v. St. John's Hospital, 135 N.E. (2d) 410 (1956).
Oklahoma	Liable to paying patients. Sisters of the Sorrowful Mother v. Zeidler, 82 P. (2d) 996, 183 Okla. 454 (1938). No reported cases involving charity patients.
Oregon	Immune from liability. Gregory v. Salem General Hospital, 153 P. (2d) 837, 175 Ore. 464 (1944).
Pennsylvania	Immune from liability. Gable v. Sisters of St. Francis, 75 A. 1087, 227 Pa. 254 (1910); Knecht v. St. Mary's Hospital, 140 A. (2d) 30 (1958).
Rhode Island	Immune from liability by statute. General Laws, Section 7-1-22 (1956).
South Carolina	Immune from liability. Lindler v. Columbia Hospital, 81 S.E. 512, 98 S.C. 25 (1914).
South Dakota	No reported cases.
Tennessee	Full liability but damages not recoverable out of trust property. Vanderbilt University v. Henderson, 127 S.W. (2d) 284, 23 Tenn. App. 135 (1938).
Texas	Immune from liability. Exception: liable for negligence in selection or retention of employees. Jones v. Baylor Hospital, 284 S.W. (2d) 929 (1955).
Utah	Liable to paying patients and probably also to nonpaying patients. Sessions v. Thomas P. Dee Memorial Hospital, 78 P. (2d) 645, 94 Utah 460 (1938).
Vermont	Full liability. Foster v. Roman Catholic Diocese of Vermont, 70 A. (2d) 230, 116 Vt. 124 (1950).
Virginia	Immune from liability. Weston v. Hospital of St. Vincent, 107 S.E. 785, 131 Va. 587 (1921). Exception: liable for negligence in selection and retention of employees. Norfolk Protestant Hospital v. Plunkett, 173 S.E. 363, 162 Va 151 (1934).
Washington	Liable to paying but not to nonpaying patients. Pierce v. Yakima Valley Memorial Hospital, 260 P. (2d) 765 (1953). Liable for negligence in selection or retention of employees. Canney v. Sisters of Charity, 130 P. (2d) 899, (1942).
West Virginia	Immune from liability. Meade v. St. Francis Hospital, 74 S.E. (2d) 405, 137 W. Va. 834 (1953). Exception: liable for negligence in selection or retention of employees. Roberts v. Ohio Valley General Hospital, 127 S.E. 318, 98 W. Va. 476 (1925).
Wisconsin	Immune from liability. Grabinski v. St. Francis Hospital, 63 N.W. (2d) 693, 266 Wis. 339 (1954). Liable for negligence in selection or retention of employees. Schumacher v. Evangelical Deaconess Society, 260 N.W. 476, 218 Wis. 169 (1935).
Wyoming	Immune from liability to nonpaying patients. Bishop Randall Hospital v. Hartley, 160 P. 385, 24 Wyo. 408 (1916). No reported cases involving paying patients.

MEDICAL NEWS

ARIZONA

Regional Meeting of Physicians.—The Arizona regional meeting of the American College of Physicians will be held Oct. 18 at St. Luke's Hospital, Phoenix, under the general chairmanship of Dr. William R. Hewitt. Invited speakers include Drs. Earl J. Baker, Phoenix, and Preston J. Taylor, Tucson, who will give "New Developments in Hypothermia" and "Malabsorption Syndrome," respectively. Speaker at the banquet in the Safari Hotel, Scottsdale, will be Dr. Fuller B. Bailey, professor of medicine, University of Utah College of Medicine, Salt Lake City, and regent of the college. There is no registration fee. For information write Dr. Leslie B. Smith, 1130 E. McDowell Road, Phoenix, Ariz.

ARKANSAS

Appoint Professor of Anatomy.—Horace N. Marvin, Ph.D., has been promoted professor and head of the department of anatomy at the University of Arkansas Medical Center, Little Rock. Dr. Marvin, who joined the School of Medicine faculty in 1942 and has been an associate professor since 1949, succeeds Dr. William C. Langston, who has reached emeritus rank after serving on the faculty for 28 years.

CALIFORNIA

Punch in Galvanized Container Poisonous.—According to the Morbidity and Mortality Weekly Report of the Public Health Service for Sept. 5, the California Department of Public Health has reported an outbreak of food poisoning following the consumption of a punch drink served in a coffee shop. Fourteen of 25 persons who drank the punch became ill with cramps and diarrhea from 15 to 45 minutes after drinking the suspect beverage. The punch, consisting of a commercial mix, fresh and bottled lemon juice, sugar, and water, was prepared in a galvanized iron container and then stored in a refrigerator. The lining of the cans had been extensively corroded by the punch. Chemical analysis of a sample of the punch showed zinc present in the proportion of 184 parts per million. No other toxic heavy metals were found.

Dr. Topping Named University President.—Dr. Norman H. Topping took office Sept. 2 as president of the University of Southern California, his alma mater. Dr. Topping returned to Southern California from the University of Pennsylvania, where he had been vice-president for medical affairs six years. He formerly was an assistant surgeon general of the U. S. Public Health Service and associate director of the National Institutes of Health at Bethesda, Md. During World War II he was a member of the U. S. Typhus Commission and won its medal. He also has received the Bailey K. Ashford award of the American Society of Tropical Medicine and the award of the Washington Academy of Science. Dr. Topping was president of the American Society of Tropical Medicine in 1949-50, and since 1956 has been chairman of the Committee on Virus Research and Epidemiology of The National Foundation.

FLORIDA

University Grants.—Melvin Fried, Ph.D., assistant professor of biochemistry at the University of Florida College of Medicine, Gainesville, has received a $32,660 grant from the National Institutes of Health to finance a three-year study devoted to the characterization of protein moieties of lipoproteins.——The U. S. Public Health Service has announced the awarding of a $24,000 grant to Dr. William W. Stead, associate professor of medicine at the University of Florida College of Medicine, Gainesville, to finance a two-year study for the development of an improved test of pulmonary ventilator function.

GEORGIA

New Chair at Emory.—Dr. Ross L. McLean has been appointed to the newly created chair of tuberculosis and pulmonary diseases at the Emory University School of Medicine, Atlanta, established by the Atlanta Tuberculosis Association. Dr. McLean was formerly director of professional services at the Veterans Administration Hospital in Baltimore, and an assistant professor of medicine at Johns Hopkins University.

ILLINOIS

Eye and Ear Infirmary Centennial Dinner.—In connection with the centennial observation of the founding of the Illinois Eye and Ear Infirmary, Chicago, the Illinois Department of Public Welfare, in cooperation with the University of Illinois, will join with the alumni associations of otolaryngology and ophthalmology in a celebration dinner at the Palmer House Hotel, Chicago, Oct. 15. The infirmary is dedicated to service, education, and research providing free medical services for indigent

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

citizens of Illinois suffering from diseases of the eye, ear, nose, and throat. For information write Dr. Otto L. Bettag, Director, Department of Public Welfare, State of Illinois, Springfield.

Chicago

Passavant Dedicates New Pavilion.—The new East Pavilion of Passavant Memorial Hospital was dedicated Sept. 21. The nine-story, 4 million dollar addition provides a potential 90 beds, increasing the hospital's patient capacity to 353. The surgery suite in the new wing includes eight operating rooms and allied treatment and diagnostic units. Two operating rooms have colored closed-circuit television equipment. Next to the auditorium is a conference room for classes and small meetings. The radiology department is equipped with an automatic processing machine which processes a film in eight minutes. Passavant is affiliated with Northwestern University Medical School as a teaching hospital.

INDIANA

Annual State Meeting in Indianapolis.—The 109th annual convention of the Indiana State Medical Association will be held at Murat Temple, Indianapolis, Oct. 12-15. Round-table luncheons Oct. 13 are listed as follows: "Hayfever and Other Allergies," Dr. Donald J. White, Indianapolis, "Current Status of the Correct Management of Thyroid Disorders," Dr. Glenn W. Irwin Jr., Indianapolis, and "Evaluation of Patients for Cardiac Surgery," Dr. Harris B. Shumacker Jr., Indianapolis. "Chemical Tests for Intoxication" will be a program consisting of a talk by Dr. Herman A. Heise, Milwaukee, vice-chairman of the American Medical Association Committee on Medicolegal Problems, followed by a two-hour mock trial demonstration and a special scientific exhibit on "Problems in Forensic Sciences by the Forensic Sciences Study Commission of the Legislative Advisory Commission of Indiana." Dr. Ralph D. Rabinovitch, Northville, Mich., and Esther J. Swenson, Ph.D., Tuscaloosa, Ala., are participants in the annual Conference of Physicians and Schools. A symposium, "Chronic Inflammatory Diseases of the Lungs," will include the following participants: Drs. Ted F. Leigh, Atlanta, Ga.; Averill A. Liebow, New Haven, Conn.; and Thomas H. Burford, St. Louis. A golf tournament, the annual trap-skeet shoot, and a program of ladies' entertainment are arranged. For information write the Indiana State Medical Association, 1021 Hume Mansur Building, Indianapolis 4, Ind.

MICHIGAN

Exchange Program for Interns and Residents.—Eighteen hospitals in 14 communities throughout Lower Michigan are now affiliated with The University of Michigan Medical Center, Ann Arbor, in an exchange program for the advanced training of interns and resident physicians. Dr. John M. Sheldon, professor of internal medicine and director, University of Michigan department of postgraduate medicine, described the four-part program now in effect: (1)—A program which permits residents from the affiliated hospitals studying internal medicine, surgery, or obstetrics and gynecology to spend their three-year terms at the University of Michigan Medical Center. This includes a nine-month course in the basic sciences preparatory to the state board examinations. (2)—A program under which university staff members visit each affiliated hospital six or more times a year to examine and evaluate the training programs. In addition, a conference is held at the university once a year so the educational committees may meet with the university staff members to coordinate their program. (3)—Training in general practice which provides annually for about 10 internships of two years each. These interns spend alternating six-month periods at the University of Michigan and at the affiliated hospitals. (4)—A program for student experience in general practice which permits senior medical students to spend their vacation period working in affiliated hospitals. University of Michigan faculty members visit the hospitals participating in this program about 12 times each year.

MONTANA

State Medical Election.—At the annual meeting of the House of Delegates of the Montana Medical Association Sept. 13 the following officers were elected and installed: president, Dr. Herbert T. Caraway, Billings; president-elect, Dr. Leonard W. Brewer, Missoula; vice-president, Dr. Raymond F. Peterson, Butte; secretary-treasurer, Dr. Theodore R. Vye (reelected), 412 N. Broadway, Billings, Mont.; assistant secretary-treasurer, Dr. William E. Harris, Livingston (reelected); executive committe, Drs. John A. Layne, Great Falls (reelected), Edward S. Murphy, Missoula (to serve in addition to the above named officers); delegate to American Medical Association, Dr. Paul J. Gans, Lewistown; alternate delegate, Dr. Sidney C. Pratt, Miles City.

NEBRASKA

Clinical Meeting in Omaha.—The Omaha Mid-West Clinical Society will hold its 26th annual sessions at the Sheraton-Fontenelle Hotel, Omaha, Nov. 3-6. Three panel discussions are planned; "Staphylococcus Infections," "Common Fractures," and "Obstetric Shock," moderated by Drs. Henry J. Lehnhoff Jr., Richard D. Smith, and Maurice E. Grier, respectively. Dr. Donald J. Wilson, Omaha, president-elect of the society, will moderate a symposium on Nov. 6 on "This is What's New!" Guest speakers are as follows: Drs. Benjamin M. Gasul, Chicago; Thomas H. McGavack, Martinsburg, W. Va.; Earl D. Osborne, Buffalo, N. Y.; Victor Goodhill and Myron Prinzmetal, Los Angeles; Louis T. Byars, St. Louis; Edward M. Litin, Rochester, Minn.; Spencer L. Israel, Philadelphia; Julian E. J. Jacobs, Charlotte, N. C.; W. Edward Chamberlain, Washington, D. C.; and Campbell M. Gardner, Montreal, Quebec, Canada. Scientific exhibits are planned, and the meeting is classified for category I credit by the American Academy of General Practice. For information write the Omaha Mid-West Clinical Society, 1031 Medical Arts Building, Omaha 2, Neb.

NEW JERSEY

Symposium on Diabetes.—The New Jersey Diabetes Association in cooperation with the New Jersey State Department of Health will present the sixth annual Symposium on Diabetes Mellitus at the Harrison S. Martland Medical Center, Newark, Oct. 29. The morning session will feature ward rounds and a bedside conference, with Dr. Francis D. W. Lukens of the University of Pennsylvania, Philadelphia, as chief discussant and Dr. Harold J. Jeghers, of Seton Hall College of Medicine, Jersey City, moderator. The afternoon session, a clinical conference, will include the following:

The Arteries and Kidneys in Diabetes Mellitus, Dr. William E. Ehrich, Philadelphia.
Renal Biopsy Pathology in Diabetic Patients, Dr. George E. Schreiner, Washington, D. C.
Problems of Lipid Metabolism in Diabetes, Dr. David Seligson, New Haven, Conn.
Relation Between Diabetes and Obliterative Arteriosclerosis, Dr. Walter Redisch, New York City.

A panel discussion, "Arteriosclerosis, Diabetes and Related Lipid Metabolism," will be moderated by Dr. Jeghers. For information write Dr. Arthur Krosnick, State of New Jersey Department of Health, Trenton 7.

NEW JERSEY

Lectures on Sterilizing Equipment.—Contamination of hospital supplies by their surroundings will be discussed by Dr. Carl W. Walter, associate clinical professor of surgery, Harvard Medical School, Boston, Oct. 21, at Seton Hall College of Medicine and Dentistry, Jersey City. Dr. Walter's paper, entitled "Environmental Sepsis," will be presented from 3-4 p. m. at Murdoch Hall in the Jersey City Medical Center, Jersey City, and will be open to all with a professional interest in the subject.

Conference on Industrial Health.—"The Disturbed Adolescent, Our Future Employee" will be the theme for the New Jersey Industrial Health Conference at Far Hills Inn, Somerville, Oct. 18. The program lists the following:

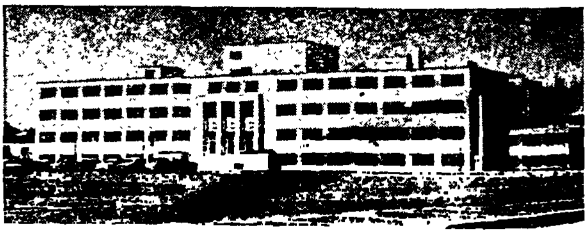
Rehabilitation of the Disturbed Adolescent, Dr. Ralph Brancale, Menlo Park, N. J.
Emotional Factors at Work, Dr. Gerald Gordon, Wilmington, Del.
Problems of Emotional Stability Today, Dr. Joseph M. Tobin, Princeton, N. J.
Medical Research in the Petroleum Industry, Dr. Horace W. Gerarde, Linden, N. J.
Electromyography—Its Value in Low Back Diagnostic Problems (Comparison of Various Diagnostic Techniques), Dr. Earl F. Hoerner, West Orange, N. J.

A disaster demonstration directed by Dr. Thomas F. Nevins Jr., director, Esso Bayway Medical Department, will be conducted at 2 p. m.

NEW YORK

Annual Public Health Lecture.—The ninth Augustus B. Wadsworth Lecture will be given at the Division of Laboratories and Research, New York State Department of Health, Albany, Nov. 20, by Dr. Albert H. Coons, visiting professor of bacteriology and immunology, Harvard Medical School, Boston, on "Stalking with Antibodies." The lectureship was established in 1950 by the staff of the laboratories and the council of the New York State Association of Public Health Laboratories.

Plan Dedication of Research Wing in Buffalo.—The dedication of Sherman Hall, a new research wing of the University of Buffalo School of Medicine, is planned for Oct. 18, 10 a. m. Cost of the T-shaped, four-storied wing was $1,641,000, made possible by a $695,000 grant from the estate of the late Dr. and Mrs. DeWitt J. Sherman, and matching funds from the National Institutes of Health. On the ground floor are physiology research laboratories, high-altitude chambers, isotope rooms, an all-weather room, and machine and electronics shops. On the first floor are student teaching laboratories, neurophysiology and cardiopulmonary research laboratories. The second floor will be devoted to research in bacteriology and immunology. The new department of biophysics at the university will be on the ground floor of the new hall.



The new Sherman Hall of the University of Buffalo School of Medicine.

Personal.—Dr. Stephen C. F. Mahady, former director of the Broadacres Sanatorium, Utica, has been appointed director of the State Out-Patient Chest Clinic at the Broadacres Sanatorium. The Sanatorium, which was turned over to the state in 1948 for use as a tuberculosis hospital, was returned to Oneida County Aug. 15.——Emanuel M. Bogdanove, Ph.D., assistant professor of anatomy, Albany

Medical College, will spend the 1958-1959 academic year in London, England, under the terms of a U. S. Public Health Service traineeship award, studying under Dr. Geoffrey W. Harris, at the Maudsley Hospital, University of London.—Dr. Barbara R. Rennick, assistant professor of physiology, New York State University Upstate Medical Center, Syracuse, has been awarded a Wellcome Foundation fellowship for travel in Europe. She left Syracuse Sept. 1 to return in about six weeks.

New York City

Lecture on Oral Pathology.—The New York Institute of Clinical Oral Pathology has announced the seventh Herman L. Reiss Memorial Lecture to be held at the New York Academy of Medicine Building, 2 E. 103rd St., Oct. 27, 8:30 p. m. Dr. Seymour J. Kreshover of the National Institutes of Health, Bethesda, Md., will lecture on "Prenatal Factors in Oral Pathologic Conditions." Members of the dental, medical, and allied professions are cordially invited.

Dr. Merritt Named Acting Dean at Columbia.—Dr. H. Houston Merritt, director of the neurology service, has been appointed acting dean of the Faculty of Medicine of Columbia University and acting vice-president in charge of medical affairs. In addition to this new post, Dr. Merritt will continue as Columbia's professor of neurology and to direct the neurological service at the New York Neurological Institute.

PENNSYLVANIA

Symposium on Nutrition in Pittsburgh.—"Advances in Human Nutrition," a symposium sponsored by the H. J. Heinz Company as part of a week of ceremonies dedicating the new Heinz Research Center, will be held in Pittsburgh, Oct. 13-14. Speakers will include Charles Glen King, Ph.D., executive director, Nutrition Foundation Inc.; Dr. Alexander Marble, president, American Diabetic Association; Dr. William Henry Sebrell, director, Institute of Nutrition Sciences, Columbia University, New York City; Dr. Nevin S. Scrimshaw, director, Institute Nutrition of Central America and Panama; Floyd S. Daft, Ph.D., director, National Institute of Arthritis and Metabolic Diseases; Dr. Fredrick J. Stare, chairman, department of nutrition, Harvard University; Dr. Eric K. Cruichshank, of the Medical Schools of the University College of the West Indies (Jamaica) and the University of London; and Dr. James M. Hundley, of the United Nations' Food and Agricultural Organization and its International Children's Emergency Fund. Reports will be made on the results of research on these subjects:

Relationship Between Nutrition and the Degenerative Diseases of Middle and Old Age (Especially Arteriosclerosis and Coronary Heart Disease.)
Maternal and Child Nutrition.
Nutritional Treatment of Children Afflicted with Inherited Metabolic Disorders, or "Chemical Diseases."
Basic Biochemical and Nutritional Research.
International Aspects of Malnutrition, with Emphasis on the Under-Developed Areas of the World.

The symposium will feature a panel discussion on nutrition education conducted by E. Neige Todhunter, Ph.D., president, American Dietetic Association, and by medical nutritionists, home economists, and educators. The sessions will be held at the H. J. Heinz Company Auditorium. Guests will tour the laboratories of the new Research Center.

Philadelphia

Symposium of Tuberculosis.—A three-day International Symposium on the Status of Tuberculosis as a Public Danger will be held in Philadelphia Nov. 20-22, at the Bellevue-Stratford Hotel, Philadelphia, under the auspices of Deborah Tuberculosis Sanatorium and Hospital of Browns Mills, N. J. Chairman of the Deborah Symposium Planning Committee is Dr. George N. J. Sommer Jr., of Trenton, N. J., and member of Deborah's medical board. Dr. Sommer said that topics to be discussed include epidemiology, mortality and morbidity changes, case findings programs, bacteriological aspects, prophylaxis including the status of BCG and Isoniazid prophylaxis, surgical aspects of tuberculosis treatment, chemotherapy of tuberculosis, drug resistance, the open negative case and its various implications of public health management. Deborah Tuberculosis Sanatorium, a free and nonsectarian institution, founded 36 years ago, has embarked on an expansion program in the role of a specializing hospital at the frontier of cardiac and pulmonary surgery.

SOUTH DAKOTA

Election of Medical Examiners.—The South Dakota State Board of Medical and Osteopathic Examiners met in August in Rapid City and elected to the presidency for the fiscal year Donald L. Kegaries, M.D., Rapid City; vice-president, Robert A. Buchanan, M.D., Huron; secretary-treasurer, Magni Davidson, M.D., Brookings. Reelected was executive secretary Mr. John C. Foster, 300 First National Bank Building, Sioux Falls, S. D. Other members of the Board include Chester B. McVay, M.D., Yankton.

VIRGINIA

Dr. Cash Appointed Professor in Pakistan.—Dr. James R. Cash, Walter Reed Professor of Pathology, University of Virginia Department of Medicine, Charlottesville, has been appointed professor of pathology at the Basic Medical Science Institute in Karachi, Pakistan. The Basic Medical Science Institute is a new school founded jointly by the Pakistani government, the International Co-operation Administration of the U. S. State Department, and

Indiana University, to train graduates of Pakistani medical schools to become faculty members of their medical schools. Dr. Cash's appointment in Pakistan is for two years, after which he plans to resume his affiliation with the department of pathology at the medical school.

Annual State Meeting in Richmond.—The 111th meeting of the Medical Society of Virginia will be held at the Jefferson Hotel, Richmond, Oct. 12-14. The presidential address will be given by Dr. Harry C. Bates Jr., Arlington, at the opening session. The program includes the following papers by guest speakers:

Present Status of Drugs in Hypertension, Dr. Edward S. Orgain, Durham, N. C.
Oral Hypoglycemic Drugs, Dr. John J. Canary, Washington, D. C.
Genetic Counseling, Dr. Victor C. Vaughan, III, Augusta, Ga.
Neurotic Problems in the Aged, Dr. Ewald W. Busse, Durham, N. C.

Specialty meetings, alumni meetings and banquets, technical exhibits, and a ladies' program are planned. Entertainment includes the banquet Oct. 14, 7 p. m., featuring the installation of Dr. Walter P. Adams, as president. For information write Mr. R. I. Howard, executive secretary, Medical Society of Virginia, 1105 W. Franklin St., Richmond 20, Va.

WASHINGTON

Dr. Kegel Goes to Iran.—Dr. Richard F. C. Kegel, of Aberdeen, has accepted the post of visiting radiologist to the Shiraz Medical Center, Shiraz, Iran, for two years. Dr. Kegel has been in the Near East previously as head of the department of radiology at The American University of Beirut, Lebanon. After his term as visiting radiologist, he will return to his practice in Aberdeen.

Annual Symposium on Heart Disease.—The 10th annual Symposium on Heart Disease, sponsored by the Washington State Heart Association in cooperation with the Washington State Department of Health, will be presented Oct. 17-18 at the University of Washington Health Sciences Building, Seattle, with the theme, "Congestive Heart Failure and Hypertension." Speakers and subjects are:

(1) Concept of Essential Hypertension; (2) Starling's Concepts of Heart Failure in Man, Sir George White Pickering, Oxford, England.
(1) Hemodynamic Effects of Exercise; (2) Response of Hypertensive Patients to Physical Exercise, Dr. Carleton B. Chapman, Dallas.
(1) Clinical-Physiological Correlations of Congestive Heart Failure; (2) Cardiac Output and Congestive Heart Failure, Dr. Lewis Dexter, Boston.
(1) Treatment of Congestive Failure; (2) Natural History of Hypertensive Disease in Man and Hypertension in Giraffes, Dr. James V. Warren, Durham, N. C.

There will be no registration fee. The symposium is approved for category I credit by the American Academy of General Practice. For information write the Washington State Heart Association, 3121 Arcade Building, Seattle 1, Wash.

WISCONSIN

Dr. Bellis Honored.—Dr. Glenford L. Bellis, the only surviving member of the group of 22 men and women who founded the Wisconsin Anti-Tuberculosis Association 50 years ago, was the first recipient of the association's new "award for distinguished service." The award will be made from time to time for "distinguished service to tuberculosis control in Wisconsin."

GENERAL

Annual Public Health Meeting.—The American Public Health Association announces that its 86th annual meeting will be held in St. Louis Oct. 27-31. Scientific sessions will be held in Kiel Auditorium, where scientific and technical exhibits will be on view. More than 40 related organizations are scheduling sessions during the same week. Highlights will include presentation of the annual Ablert Lasker awards of the association and the Sedgwick Memorial Medal. For further information write Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Executive Secretary.

Fellowship in Medical Neoplasia.—Memorial Center, a training center affiliated with Cornell University Medical College, New York City, which specializes in cancer and allied diseases, offers fellowships to a limited number of graduate physicians. Candidates must be graduates of recognized A. M. A. approved medical schools and must have completed or be in process of completing two years of postgraduate training in internal medicine in addition to one year of internship. They "must be of the highest integrity and moral character" and have an expressed interest, both academic and clinical, in the study of malignant neoplastic diseases. The salary stipend is $6,000 per annum without maintenance. Appointment is for one year normally beginning July first, renewable for one or two years for select individuals. Applicants should apply in writing to: Dr. Lloyd F. Craver, Chief, Medical Neoplasia Service, Memorial Center for Cancer and Allied Diseases, 444 E. 68th St., New York 21.

Applications for Grant in Hematology Research.—The Hematology Research Foundation invites applications for a grant-in-aid for Hematologic Research for a period of one year. Applications must be submitted no later than Nov. 10 to Hematology Research Foundation, 64 W. Randolph St., Chicago 1; nine copies are requested. Application forms for the grants are available on request. Awards will be announced in January, 1959, by the medical advisory board which will choose the applicants on the basis of the proposed research project. The Hematology Research Foundation, a nonprofit organization, provides funds for the research of leukemia, Hodgkins and other blood diseases.

Neuropsychiatrists Convene in Columbus, Ohio.—The 34th annual convention of the Central Neuropsychiatric Association will be held Oct. 17-18, with headquarters at the Deshler-Hilton Hotel, Columbus, Ohio. The presidential address will be given the afternoon of Oct. 17 by Dr. Edward G. Billings, Denver. Fourteen papers are scheduled, and Drs. Hilda R. Knobloch and Benjamin Pasamanick will present movies with their talk on "Behavior and Development in an Infant Gorilla." Presiding at the scientific sessions will be Drs. Martin H. Hoffmann, Detroit, and Hamilton F. Ford, Galveston, Texas. The annual banquet is planned for Oct. 17, 6:30 p. m. A ladies' program is arranged. For information write Dr. Ralph M. Patterson, Secretary-Treasurer, Central Neuropsychiatric Association, The Columbus Psychiatric Institute, University Health Center, Columbus 10, Ohio.

Conference on Tuberculosis in Dayton.—The Mississippi Valley Conference on Tuberculosis will be held Oct. 15-18 at the Biltmore Hotel, Dayton, Ohio. The keynote address will be given by Frank J. Lausche, senator from Ohio. A session on "Radiation Facts and Fiction" will be moderated by Dr. Fred J. Hodges, Ann Arbor, Mich. The following panel discussions and moderators are scheduled:

The '59-ers, Pioneers in Respiratory Diseases, Mr. J. Irvin Nichols, executive director, Michigan Tuberculosis Association, Lansing.
The Independent Agency Fortress of Freedom, Mr. John E. Egdorf, executive director, Tuberculosis Institute of Chicago and Cook County.
This is My Problem, Mr. George J. Kienzle, director, School of Journalism, Ohio State University, Columbus.

The Mississippi Valley Trudeau Society will meet Oct. 17 with Drs. William M. Spear, Oakdale, Iowa, and Harold G. Curtis, Cleveland, presiding at the two sessions. Two panel discussions "Atypical (Anonymous) Mycobacteria" and "Inoperable Pulmonary Neoplasm," will be moderated by Drs. Dieter Koch-Weser, Cleveland, and Virgil A. Plessinger, Cincinnati, respectively.

Physicians Meeting in Louisville.—The Kentucky-Tennessee regional meeting of the American College of Physicians will be held Oct. 18 at the Brown Hotel, Louisville, Ky. The program lists the following:

Diagnosis and Treatment of Mucous Membrane Lesions, Dr. Adolph B. Loveman, Louisville.
Comparison of Chest X-Ray Changes and Pulmonary Function in Chronic Lung Disease, Drs. William H. Anderson, Edsel S. Reed, and Paul O. Wells, Harlan, Ky.
Idiopathic Retroperitoneal Fibrosis and Factor VII Deficiency, Drs. Bernard I. Popham, and Thomas D. Stevenson, Louisville.
Death from Acute Renal Failure—Analysis and Critique, Dr. Walter K. Hoffman Jr., Memphis, Tenn.
The Electrocardiogram in Chronic Cor Pulmonale, Dr. Thomas N. Stern, Memphis.
New Cause of Pseudo Heart Disease, Dr. Maurice S. Rawlings, Chattanooga, Tenn.
Idiopathic Thrombocytopenic Purpura, Drs. Ellis A. Fuller, Louisville, Maxwell M. Wintrobe and George E. Cartwright, Salt Lake City.
Erythrocyte Acetycholinesterase in Paroxysmal Nocturnal Hemoglobinuria, Dr. Robert C. Hartmann and Joseph V. Auditore, Ph.D., Nashville.

Speaker at the banquet (7 p. m.) will be Dr. Charles A. Doan, Columbus, Ohio, first vice-president of the college. All medical residents in the area are cordially invited.

Anesthesiologists Meeting in Pittsburgh.—The American Society of Anesthesiologists will meet Oct. 18-24 in the Penn-Sheraton Hotel, Pittsburgh. Panel discussions planned for Oct. 22 are as follows: Exchange of Water and Electrolytes During the Operative Period; Resuscitation: Pneumatic, Electronic, and Expired Air; Morbidity and Mortality in the Operating Room: Where Lies the Responsibility; The Monitoring of Vital Functions During Anesthesia. Papers by Canadian speakers will include "A Technique for Measuring Concentrations of Fluothane During Closed Circuit Anesthesia with an Infra-Red Analyser," by Drs. Deirdre M. Gillies, James G. Robson, William G. Cullen, and Harold R. Griffith, Montreal, and "Acid-Base Homeostasis During Fluothane Anesthesia," by Dr. Allen B. Dobkin, Saskatoon, Saskatchewan. Luncheon panel discussions will feature Brig. Gen. Donald D. Flickinger, M.C., U. S. A. F., Washington, D. C., speaking on "Biomedical Aspects of Space Flight," and Dr. George T. Pack, New York City, presenting "The Influence of Disease on History." Motion picture sessions and scientific and technical exhibits are planned. Sixty-seven round-table luncheons will be held Oct. 21. For information write the American Society of Anesthesiology, 802 Ashland Ave., Wilmette, Ill.

Regional Physicians Meeting in Hot Springs.—The American College of Physicians Arkansas-Oklahoma Regional Meeting will be held Oct. 18 at the Arlington Hotel, Hot Springs, Ark. Dr. Bert F. Keltz, Governor for Oklahoma, will preside at the opening session at which Dr. John N. Compton, Governor for Arkansas, will present an address. Papers including invited authors are:

The Erythropoetic Factor, Drs. Walter H. Whitcomb and James F. Hammarsten, Oklahoma City.
Activation of the Free Wall of the Right Ventricle in Right Bundle Branch Block, Drs. Loyal L. Conrad and T. Edward Caddy, Oklahoma City.
Milk Alkali Syndrome, Dr. Malcolm W. Davis, North Little Rock, Ark.

Lipid Metabolism in Diabetes, Dr. Allen R. Hennes, Oklahoma City.

Dangers of the Roentgen Ray, Dr. Joseph A. Norton, Little Rock, Ark.

Spotted Fever in Oklahoma: A Clinical and Epidemiological Study, Drs. Harold G. Muchmore and Walter A. Camp, Oklahoma City.

Production of Experimental Gastritis by a Preparation of Human Gastric Juice, Drs. Stewart G. Wolf Jr., William O. Smith, Walter Joel, and Merlin K. Duval, Oklahoma City.

A panel on "Hepatitis" is planned for 4 p. m., moderated by Dr. Richard V. Ebert, Little Rock. At the evening session banquet, with Dr. Compton as toastmaster, guest speaker will be Dr. Dwight L. Wilbur, San Francisco, president of the college.

EXAMINATIONS AND LICENSURE

MEDICAL SPECIALTY BOARDS

American Board of Anesthesiology: *Oral Examination.* San Francisco, Sept. 29-Oct. 3, and Phoenix, April 5-10, 1959. The 1959 written examination will be given in various locations in the United States and Canada, July 17. The final date for filing application for the 1959 written examination is six months prior to the examination. There is no filing deadline for oral examinations. Sec., Dr. Curtiss B. Hickcox, 217 Farmington Ave., Hartford 8, Conn.

American Board of Dermatology: *Written. Several Cities,* June 30. *Oral.* Detroit, Oct. 17-19. Final date for filing all applications is April 1. Sec., Dr. Beatrice Maher Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine: *Written.* Oct. 20, 1958. *Oral.* Chicago, Oct. 13-16. *1959 Schedule—Written,* Oct. 19. Final date for filing application is May 1. *Oral.* For candidates in the South and Southwest, New Orleans, Feb. 3-6. Final date for filing application is Jan. 1. *Oral.* For candidates in the Midwest. Chicago, April 15-18. Final date for filing application is Jan. 1. *Oral.* For candidates on the West Coast. Final date for filing application is March 1. *Oral.* For candidates on the East Coast, Nov. 6-7, 9-10. Final date for filing application is March 1. *Examination in the Subspecialties. Gastroenterology.* Philadelphia, April 17-18. Final date for filing application is Feb. 1. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

American Board of Neurological Surgery: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: Applications for certification, new and reopened, Part I, and requests for re-examination Part II, are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of application was September 1, 1958. No application can be accepted after that date. It should be noted by prospective candidates that the deadline date in 1959 is August 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written,* qualifying test (Part I), January 1959. Final date for filing application was July 1, 1958. *Oral Examinations 1958* (Part II): Chicago, Oct. 6-10. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, Jan. 21-23, 1959. Deadline for receipt of applications was Aug. 15. Sec., Dr. Sam W. Banks, 116 South Michigan Avenue, Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 6-10. Final date for filing application was April 30. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology: Chicago, Oct. 30-Nov. 1. Final date for filing application was Sept. 30 Sec., Dr. Edward B. Smith, Indiana University Medical Center, 1100 W. Michigan St., Indianapolis 7.

American Board of Pediatrics: *Oral.* Chicago, Oct. 24-26 and New York, Dec. 5-7. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Oral and Written.* Chicago, Oct. 9-11. Final date for receipt of case reports was July 1. Corresponding Secretary, Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *Examination in Public Health.* St. Louis, Oct. 24-26. Final date for filing application was Aug. 15. Sec., Dr. Thomas F. Whayne, 3438 Walnut St., Philadelphia 4.

American Board of Psychiatry and Neurology: New York City, Dec. 15-16; New Orleans, Mar. 16-17. Training credit for full time psychiatric and/or neurologic assignment in unapproved military programs or services between the dates of Jan. 1, 1950 and Jan. 1, 1954 will be terminated on Jan. 1, 1959. Sec., Dr. David A. Boyd, 102-110 Second Ave. S. W., Rochester, Minn.

American Board of Radiology: *Regular Examination.* Washington, D. C., Dec. 8-11. Final date for filing application was July 1. *Special examination in Nuclear Medicine for those diplomates in Radiology or Therapeutic Radiology.* Washington, D. C., Dec. 6. Final date for filing application was Oct. 1. *Special Examination.* Cincinnati, Mar. 16-19, 1959. Final date for filing application is Nov. 1. Candidates completing training June 30, 1959 are not eligible for the Spring 1959 examinations. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: Written examinations (Part I) will be held at various centers in the United States, Canada, Hawaii, Puerto Rico, and certain military centers abroad on December 3. The date of the Fall examination in *Part I* has been changed from the last Wednesday of October as announced in its current Booklet of Information to December 3, 1958. Thereafter, examinations in Part I will be held once annually, on the first Wednesday of December. The closing date for filing applications will be August 1. *Part II.* Rochester, Minn., Oct. 20-21; Nashville, Tenn., Nov. 17-18; New York City, Dec. 15-16; Houston, Tex., Jan. 12-13; New Haven, Conn., Feb. 9-10; Durham, No. Car., March 9-10; San Francisco, April 13-14; Indianapolis, May 11-12; Columbus, Ohio, May 14-15. Sec., Dr. John B. Flick, 1617 Pennsylvania Blvd., Philadelphia 3.

Board of Thoracic Surgery: Various centers throughout the United States. *Written.* Spring of 1959. Final date for filing application is December 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Avenue, Detroit 2.

American Board of Urology: *Written Examination.* Twenty-five cities throughout the country, Dec. 5. The oral will be given in Chicago in February 1959. Sec., Dr. William Niles Wishard, Jr., 30 Westwood Road, Minneapolis 26.

GOVERNMENT SERVICES

ATOMIC ENERGY COMMISSION

Atomic Demonstration Visits High Schools in Every State.—Last week, seven panel trucks left the American Museum of Atomic Energy to begin the fourth year of the Atomic Energy Commission's high school demonstration program. With each unit is a manager—a college graduate trained in nuclear energy—and demonstration apparatus including animated panels, charts, a geiger counter, and a Van de Graff generator.

This one-day program is designed to give its young listeners a glimpse of the present and potential uses of atomic energy. First a demonstration-lecture is presented at a regular assembly of the school's entire student body; then the exhibits manager arranges for experiments and discussions for students in their science classes and clubs. A small nuclear science library of books suitable for secondary school students carried with "This Atomic World" is stressed by the manager in his discussions.

Since its beginning in 1955, "This Atomic World" has traveled to high schools in every state and the District of Columbia to stimulate the interest of young people in science and science-teaching careers. The program is made available without charge. The Oak Ridge Institute of Nuclear Studies in Tennessee, a nonprofit corporation of 36 southern colleges and universities, also administers 24 other traveling exhibit units of three major types and operates the American Museum of Atomic Energy for the Atomic Energy Commission.

AIR FORCE

International Symposium on the Physics and Medicine of the Atmosphere and Space.—The United States School of Aviation Medicine has sent out invitations for the Second International Symposium on the Physics and Medicine of the Atmosphere and Space to be held Nov. 10-12 at the Hilton Hotel in San Antonio, Texas. The general subjects of the sessions are environment, planets, vehicles, rescue in space, medical problems, and medical problems of time. Southwest Research Institute, 8500 Culebra Rd., San Antonio, is in charge of the arrangements.

The keynote speech on Monday morning will be delivered by the commandant of the School of Aviation Medicine, Major Gen. Otis O. Benson Jr., on "Common Platform of Physics and Medicine in the Advance of the Vertical Frontier." Among other speakers and chairmen of the sessions will be the following:

Alan T. Waterman, National Science Foundation
Hugh L. Dryden, director, National Advisory Committee for Aeronautics
Marcel Nicolet, head, department of radiation, Meteorological Institute of Belgium
Lieut. Gen. Walter E. Todd, Maxwell Air Force Base, Alabama
Hubertus Strughold, professor of space medicine, U. S. School of Aviation Medicine
Jakob Eugster, University of Zurich, Switzerland
Detlev W. Bronk, Rockefeller Institute of Medical Research, Rochester, N. Y.
Major Gen. Bernard A. Schriever, U. S. Air Force
L. R. Shepherd, president, British Interplanetary Society, London
Wernher von Braun, Army Ballistic Missile Agency, Alabama
Major Gen. Dan C. Ogle, surgeon general, U. S. Air Force
Capt. Langdon Newman, commandant, U. S. Naval School of Aviation Medicine, Pensacola, Fla.
Alberto Hurtado, director, Institute of Andean Biology, Lima, Peru
Siegfried J. Gerathewohl, associate professor of Psychology, U. S. Air Force School of Aviation Medicine
William R. Lovelace II, Lovelace Foundation, Albuquerque, N. Mex.
E. J. Baldes, Mayo Clinic, Rochester, Minn.
Walter O. Roberts, professor of astronomy, University of Colorado, Boulder
Heinz Haber, University of California, Los Angeles.

Held at the close of the geophysical year, this symposium affords an opportunity for the international exchange of information on subjects related to the exploration of space. Attendance is restricted (500) to those directly concerned in the physics and medicine of space. The proceedings will be published in book form.

Personal.—Brig. Gen. Earl Maxwell, M. C., retired Sept. 1, after 30 years' active service. General Maxwell is rated as Chief Flight Surgeon. He is board certified in Ophthalmology and in aviation medicine. After retirement, he will be affiliated with Alcon Laboratories, Fort Worth, Texas.

ARMY

Personal.—Col. Clark B. Williams, M.C., formerly Advisor to the U. S. Military Assistance Advisory Group to the Nationalist Government of China on Taiwan, has been named Executive Officer at Brooke Army Medical Center, San Antonio, Texas. ——Brig. Gen. Carl W. Tempel, M. C., joined the office of the surgeon general in Washington, D. C., on Sept. 1, as chief of the professional division, succeeding Brig. Gen. Sam F. Seeley, who retired from the Army after more than 31 years' service. Dr. Tempel will be responsible for the professional activities of the Army medical service in all general and specialty fields of medical practice. He is certified by the American Board of Internal

Medicine and in the Sub-specialty Board for Pulmonary Disease.—Major Gen. Paul I. Robinson, executive director, Office for Dependents' Medical Care, Army Surgeon General's Office, became Coordinator of Medical Relations for the Metropolitan Life Insurance Company on his retirement on Aug. 31. He was succeeded by his assistant, Col. Floyd L. Wergeland. General Robinson had been executive director of the "medicare" program since it was established in December, 1956.

NAVY

Personal.—Capts. Allan S. Chrisman, Calvin B. Galloway, and Frank P. Kreuz Jr., have been made temporary rear admirals. Captain Chrisman is commanding officer, U. S. Naval Hospital, San Diego, Calif.; Captain Galloway is commanding officer of the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md.; and Captain Kreuz is commanding officer of the U. S. Naval Hospital, National Naval Medical Center.

The following medical officers, all captains, were retired on Aug. 1, 1958: Robert B. Johnson, Bishop L. Malpass, Donald W. Miller, James R. Reid, Robert B. Simons, Edward F. Slosek, Robert B. Shepardson, and Morris M. Rubin.

PUBLIC HEALTH SERVICE

Grants for Training Health Workers.—Grants and awards totaling almost two million dollars for the training of public health specialists were announced, on Sept. 8, by the Public Health Service. A total of $1,003,410 was awarded to 231 persons, including physicians, engineers, health educators, laboratory workers, dentists, and members of other health professions. These persons will enter colleges and universities throughout the United States this fall for a year of training in public health aspects of their professions. Grants totaling $981,617 also were made to 47 colleges and universities offering courses which prepare registered nurses for beginning positions in public health nursing and to 11 schools of public health for training of students whom the schools select.

This is the third year that public health training funds have been available from the federal government. During the first two years of the program, traineeship grants and awards have financed the training of over 1,000 public health workers. The purpose of the program is to relieve the acute personnel shortage in state and local health agencies.

Influenza Vaccination.—The Public Health Service has recommended consideration of influenza vaccination among groups wishing to guard against absenteeism in their professions or occupations and among those to whom the disease might be an added health risk. There are now ample supplies of influenza vaccine of the polyvalent type, containing immunizing material against the important strains of influenza, including the Asian strain. Vaccination should be planned before the fall season begins. According to Dr. Leroy E. Burney, surgeon general of the Public Health Service, there is no indication at present that widespread attacks of influenza will occur this fall and winter, but there undoubtedly will be some influenza, and vaccination is a prudent measure for certain groups and individuals.

Practicing physicians should be the judges of whether or not to vaccinate individuals. Groups which should be considered for vaccination include hospital staffs whose services are necessary to the care of the sick; groups living in close proximity where influenza could spread rapidly, such as institutions; industrial or service groups, big or small, in occupations where the sudden absence of a sizable part of the force would create serious disruption of the work; and individual patients or groups who have a special risk, such as the aged, the chronically ill, and pregnant women.

MISCELLANEOUS

The Virchow Centennial Lectures.—The Armed Forces Institute of Pathology (AFIP) in Washington, D. C., is celebrating, throughout the year 1958, the centennial of the publication of Rudolph Virchow's "Cellular Pathology," in which Virchow first proclaimed a unified concept of cells as self-reproducing biological entities. The celebration program started on March 3, with the first of a series of five daily lectures presented at the institute at 11 a. m., to which the scientific public in the Washington area were invited as they have been to all of the lectures in this series. The schedule of lectures for the rest of the year is as follows: On Oct. 15, Histochemistry and Cellular Pathology, will be presented by R. D. Lillie, M.D., chief, Clinical Laboratory of Pathology and Histochemistry National Institute for Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Md.; Nov. 12, The Cellular Doctrine in the Framework of Medical Science, by Alfred Plaut, M.D., cardiovascular section, AFIP; Nov. 19, Tumors and Cellular Pathology, by Jacob Furth, M.D., Associate Director of Research, Childrens Cancer Research Foundation, Harvard Medical School, Boston; Dec. 3, The Contributions of Studies on Deficiency States to Cellular Pathology, by R. H. Follis Jr., M.D., chief, nutritional section, AFIP; and Dec. 17, Genetics and Cellular Pathology, by K. M. Brinkhous, M.D., professor of pathology, University of North Carolina School of Medicine, Chapel Hill, N. C.

DEATHS

Forrer, Daniel Atwell Ⓜ Griffin, Ga.; University College of Medicine, Richmond, 1901; died Aug. 13, aged 86.

Fortelka, Frank Louis Ⓜ Riverside, Ill.; Chicago College of Medicine and Surgery, 1917; veteran of World War I; served on the staff of St. Anthony's Hospital in Chicago; died in the Veterans Administration Hospital in Hines Aug. 17, aged 64, of Parkinson's disease.

Fracasse, John Ⓜ San Diego, Calif.; Georgetown University School of Medicine, Washington, D. C., 1935; certified by the National Board of Medical Examiners; veteran of World War II; died Aug. 5, aged 50.

Godschall, Alice Bush, Embreeville, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1928; member of the American Academy of General Practice; on the staff of the Embreeville State Hospital; died in the Chester County Hospital, West Chester, July 29, aged 61.

Graham, Joseph Brown, Birmingham, Ala.; University of Virginia Department of Medicine, Charlottesville, 1928; member of the Medical Association of the State of Alabama; died in the South Highlands Infirmary, Aug. 8, aged 56, of acute pulmonary edema and arteriosclerotic heart disease.

Gray, George Morris, Denver; University of Kansas School of Medicine, Kansas City, 1952; interned at the Presbyterian Hospital in Denver, where he served a residency; served a residency at St. Luke's Hospital; resident in pathology at the Children's Hospital; found dead in his car Aug. 3, aged 34, of an overdose of sleeping pills.

Helmholz, Henry Frederic Ⓜ Rochester, Minn., head of the section of pediatrics at the Mayo Clinic from 1921 to 1946, died in the Methodist Worral Hospital Aug. 19, aged 75, of pulmonary edema and coronary atherosclerosis. Born in Chicago, Dr. Helmholz received a bachelor of science degree from the University of Wisconsin, Madison, in 1902, and that of doctor of medicine in 1906 from Johns Hopkins University, Baltimore, where he also served as a fellow in pathology. From 1907 to 1909 he did graduate work in medicine at the University of Berlin, University of Breslau, and the University of Vienna, returning to Chicago to enter the practice of pediatrics. He was assistant professor of pediatrics at Rush Medical College, Chicago, from 1910 to 1920, medical director of the Infant Welfare Society of that city for the same period, and a member of the Otho S.A. Sprague Memorial Institute for Medical Research from 1912 to 1920. During World War I, Dr. Helmholz served as a consultant in pharmacology to the War Department. On Jan. 1, 1921, he became chief of the section of pediatrics in the Mayo Clinic. He became a senior consultant at the Clinic on July 1, 1946, and reached emeritus status in 1949. He also served as professor of pediatrics in the Mayo Foundation, Graduate School, University of Minnesota, from 1921 to his retirement in 1949. In October, 1951, foundation alumni who were fellows in pediatrics honored him at a dinner. At this time an etching of Dr. Helmholz was presented to the section of pediatrics and copies of the etching given to each guest. Dr. Helmholz was associated with St. Mary's, Colonial, and Worral hospitals. He was the moving spirit in the establishment of the Rochester Child Health Project which attracted public health and social workers throughout the Western Hemisphere and many representatives of health, and allied organizations from abroad to become acquainted with activities in the field of "social" pediatrics. He was a specialist certified by the American Board of Pediatrics and served as its vice-president when it was organized in 1934. In 1935 he was appointed a member of an advisory board of experts for the Laboratory for Child Research established by the Loyal Order of Moose in Mooseheart, Ill. He was chief medical consultant for the United Nations International Children's Emergency Fund in Europe in 1947-1948, a post which took him into many countries. In 1940, he served as vice-chairman of the White House Conference on Children and Youth in a Democracy, as chief consultant to the Mid-Century White House Conference in 1950, and as chairman of the subcommittee on child health of the advisory committee of the U. S. Children's Bureau. He was past-president of the Fifth International Congress of Pediatrics, of the American Pediatrics Society, and of the American Academy of Pediatrics, and an honorary member of many national pediatric societies in Europe and Central and South America. Dr. Helmholz was chairman of the Section on Diseases of Children of the American Medical Association in 1923-1924; an associate member of the American Urological Association; a member of the Northwest Pediatric Society, the American Society of Pharmacology and Experimental Therapeutics, American Physiological Society, the American Association of Bacteriolog-

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Ⓜ Indicates Member of the American Medical Association.

ists and Pathologists, the Society for Research in Child Development, the National Research Council, the American Child Health Association, the Alumni Association of the Mayo Foundation, the Society of the Sigma Xi, Phi Beta Kappa, the Alpha Omega Alpha medical honor society, and the Chi Psi academic fraternity. He was also a member of the executive council of the Governor's Committee on Children and Youth of the State of Minnesota, state chairman of the Exceptional Child of the Minnesota Parent Teacher Association, and a member of the Minnesota Council for the Gifted Child. In 1947 he received the National Order of Merit of Carlos J. Finlay, in the grade of comendador, or knight commander, from the Republic of Cuba. In 1951 he was elected first president of the Olmsted County Community Council. In 1952 he was named chairman of the committee on health of the National Congress of Parents and Teachers, and in 1954 he became a member of the executive committee of that organization. In the latter year, he was elected vice-president of the Minnesota Congress of Parents and Teachers. In 1957 he was made a member of the Fifty-Year Club of the Minnesota State Medical Association, and in 1958 he was appointed chairman of the Minnesota State planning committee for the 1960 White House Conference on Children and Youth. In 1943 he was awarded the honorary degree of doctor of science by the University of Wisconsin in Madison, and from 1917 to 1922 he was editor-in-chief of the *American Journal of Diseases of Children*, serving as associate editor after 1926.

Hoermann, Rudolph Bernhard, Milwaukee; Chicago Homeopathic Medical College, 1899; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; on the staff of St. Joseph's Hospital; died Aug. 4, aged 85, of heart disease.

Holland, Harry Albert, Mantoloking, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1917; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; fellow of the American College of Physicians; served on the staffs of the Chestnut Hill Hospital in Philadelphia and the Point Pleasant Hospital in Point Pleasant, where he died Aug. 9, aged 65, of coronary disease.

Irvin, James, Santa Barbara, Calif.; Medical College of Ohio, Cincinnati, 1909; died July 15, aged 77, following an operation on the gallbladder.

Joelson, Morris Samuel Ⓜ Paterson, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1906; consultant in obstetrics at Barnert Memorial Hospital; died in Deal Aug. 20, aged 74, of cancer.

Jones, Donald Jack Ⓜ Sacramento, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1936; veteran of World War II; died in the Lakeside Hospital in Cleveland Aug. 7, aged 48, of coronary heart disease.

Knight, Durell Keeling, Kansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1924; member of the Kansas Medical Society; veteran of World Wars I and II; on the staff of Bethany Hospital and St. Margaret's Hospital, where he died Aug. 4, aged 63, of coronary insufficiency.

Lo Popolo, Vincent Charles Ⓜ Cross City, Fla.; College of Physicians and Surgeons, Boston, 1947; died Aug. 2, aged 43.

Luhr, Alfred Francis, Buffalo; Jefferson Medical College of Philadelphia, 1905; specialist certified by the American Board of Ophthalmology; an associate member of the American Medical Association; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; associated with Mercy, Buffalo General, and Sisters of Charity hospitals; died in St. Marys, Pa., Aug. 4, aged 78.

McMillan, Walter Ree, Dallas, Texas; Meharry Medical College, Nashville, Tenn., 1909; died Aug. 5, aged 84.

Mahon, George Dixon Ⓜ Dallas, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; member of the founders group of the American Board of Surgery; member of the Southern Surgical Association; fellow of the American College of Surgeons; served on the staffs of the Baylor University Hospital and Medical Arts Hospital; at one time on the staff of the Mayo Foundation in Rochester, Minn.; founder of the Dallas–Garland Airport; died Aug. 4, aged 65, of the Adams–Stokes syndrome.

Mayfield, George Franklin, Austin, Texas; St. Louis College of Physicians and Surgeons, 1906; died Aug. 4, aged 75, of cerebral hemorrhage.

Mayfield, Hugh F., Huttig, Ark.; Gate City Medical College, Texarkana, Ark., 1906; member of the Arkansas Medical Society; died July 30, aged 78, of ruptured aortic aneurysm.

Meek, Charles Roscoe Ⓜ Lorain, Ohio; Starling–Ohio Medical College, Columbus, 1913; member of the American Academy of General Practice; at one time supervisor of the public schools of Lorain; served as medical examiner and surgeon for the National Tube Division, Lorain Works; formerly health commissioner of Lorain; past-president of the staff of St. Joseph's Hospital; died Aug. 2, aged 71.

Milloy, Frank Joseph Ⓜ Phoenix, Ariz.; Northwestern University Medical School, Chicago, 1920; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; formerly secretary of the Arizona State Medical Association; charter member of Blue Cross and Blue Shield; chief of staff, St. Joseph's Hospital; affiliated with all the local hospitals; served as editor of *Arizona Medicine;* died Aug. 4, aged 64, of pulmonary lung tumor with pneumonitis.

Noble, Guy Eugene Ⓜ St. Marys, Ohio; Starling Medical College, Columbus, 1905; served as councilor of the Third District of the Ohio State Medical Association; chairman of the board of governors and chief of staff, Joint Township District Hospital; member of the staff, St. Rita's and Memorial hospitals in Lima; served as health officer; died Aug. 4, aged 77, of congestive heart failure.

Noon, Russell Alleyne, Johnstown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1924; chief on the medical service, Conemaugh Valley Memorial Hospital; associated with the Johnstown Memorial Hospital, where he died Aug. 4, aged 59, of arteriolar nephrosclerosis and hypertension.

Novello, Joseph Albert Ⓜ Elizabeth, N. J.; Georgetown University School of Medicine, Washington, D. C., 1932; member of the Industrial Medical Association; veteran of World War II; formerly member of the city board of education, affiliated with Alexian Brothers, Elizabeth General, and St. Elizabeth's hospitals; died in Millington Aug. 6, aged 52, of cancer of the intestine.

Phipps, George Wilson Ⓜ Caruthersville, Mo.; Hospital College of Medicine, Louisville, 1902; veteran of World War I; died Aug. 5, aged 78.

Sawyer, John Brewster Ⓜ El Cerrito, Calif.; St. Louis University School of Medicine, 1943; member of the American Academy of General Practice; veteran of World War II; on the staffs of the Alta Bates and Herrick Memorial hospitals in Berkeley; died Aug. 5, aged 43, as the result of a mid-air glider collision.

Sears, Henry Clark, Binghamton, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1906; an associate member of the American Medical Association; served as chief medical inspector for the Binghamton school system; formerly on the staff of the Binghamton City Hospital; died Aug. 5, aged 77, of cerebral hemorrhage.

Sellards, Joseph Walter Ⓜ Clarinda, Iowa; Drake University Medical Department, Des Moines, 1901; veteran of World War I; on the staff of the Clarinda Municipal Hospital, where he died Aug. 3, aged 83, of bronchopneumonia and uremia.

Sparks, Samuel M. Ⓜ New Kensington, Pa.; Jefferson Medical College of Philadelphia, 1927; member of the Industrial Medical Association; fellow of the International College of Surgeons and the American College of Surgeons; senior surgeon at Citizens General Hospital, where he died Aug. 4, aged 58, of sarcoma of the lower spine with metastasis to the lungs.

Stack, Robert Anthony Henry Ⓜ Lorain, Ohio; University of Cincinnati College of Medicine, 1920; fellow of the American College of Surgeons; veteran of World War I; member of the board of health of Lorain; associated with St. Joseph's Hospital, where he died Aug. 4, aged 63.

Stomberg, Carl Winfred Ⓜ Seattle; University of Minnesota Medical School, Minneapolis, 1925; formerly health officer of Everett; drowned Aug. 2, aged 56, while water skiing on Lake Stevens.

Swift, Earle Reed Ⓜ Lakeview, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; on the staff of the Kelsey Hospital, where he died Aug. 5, aged 85, of coronary thrombosis.

Thompson, Cleveland Ⓜ Waynesboro, Ga.; University of Georgia Medical Department, Augusta, 1909; fellow of the American College of Surgeons; past-president of the Medical Association of Georgia; on the staff of the Burke County Hospital; died Aug. 5, aged 74.

Walker, Joseph Edison, Memphis, Tenn.; Meharry Medical College, Nashville, Tenn., 1906; chairman of the board of Universal Life Insurance Company; president of the Tri-State Bank of Memphis; shot and killed by an acquaintance July 28, aged 78.

Wiesenfeld, Paul Cholmar, Perth Amboy, N. J.; L. R. C. P., Edinburgh, L. R. C. S., Edinburgh, and L. R. F. P. & S., of Glasgow, 1940; member of the American Academy of Orthopaedic Surgeons; specialist certified by the American Board of Orthopaedic Surgery; on the staffs of the New Jersey Orthopaedic Hospital in Orange, South Amboy (N. J.) Memorial Hospital, Roosevelt General Hospital, Metuchen, and Perth Amboy General hospitals; orthopedic consultant at Somerset Hospital, Somerville; died Aug. 9, aged 43, of coronary thrombosis.

Ziegler, William Henry Ⓜ Boonville, Mo.; Northwestern University Medical School, Chicago, 1922; served as pediatrician for the division of child hygiene, state board of health; on the staff of St. Joseph Hospital, where he died Aug. 3, aged 66, of acute myocardial infarction.

FOREIGN LETTERS

BRAZIL

Endocervicitis and Sterility.—Dr. J. S. Goes (*Anais da maternidade de São Paulo,* August, 1958) analyzed the factors modifying the receptivity of the cervical mucus to spermatozoa and the interference it offers to the migration of the sperms. He pointed out the necessity of maintaining the organic and functional integrity of the cervical mucogenic glands. This is destroyed by high cervical amputations and by conization and electrocoagulation of the cervical canal. In the presence of endocervicitis, the repeated intracervical application of such antibiotics as oxytetracycline was recommended.

Mammary Sarcoma.—At the Central Cancer Hospital in São Paulo, 10 mammary sarcomas were observed in a series of 754 malignancies of the breast. Dr. Silva Neto and co-workers (*Revista paulista de medicina,* vol. 52, June, 1958) stated that the mean age of the patients was 45.2 years, which is less than that for carcinoma of the breast. Discharge from the nipple was not observed in any of the patients. The chief complaint in all was a lump in the breast. Five of the tumors were fixed to the skin, and in two there were ulcerations. Four were fibrosarcoma, two liposarcoma, two rhabdomyosarcoma, one malignant mesenchymoma, and one cystosarcoma phylloides with malignant changes. This latter spread out to the axillary nodes. Postoperative irradiation was given those with lymph-node metastasis. The prognosis is better in patients with sarcoma than in those with carcinoma of the breast.

Segmentary Aortic Stenosis.—Dr. Nairo Trench and co-workers (*Arquivos da Santa Casa de São Paulo,* June, 1958) restricted the term "coarctation" to congenital cases of aortic stenosis. For acquired cases they preferred the term "segmentary or circumscribed stenosis." They observed three patients with segmentary aortic stenosis in an atypical location. Their symptoms strongly suggested coarctation of the aortic isthmus. Two of these patients were operated on with the latter diagnosis and only at operation was the atypical location and the acquired nature of the stenosis demonstrated. In the first patient, a 30-year-old man, the stenosis was localized in the abdominal aorta, above the renal arteries. It was impossible to verify with certainty the nature of the lesion. The second, a 5-year-old girl, was operated on with the diagnosis of isthmic coarctation. During the operation a segmentary stenosis of the diaphragmatic section of the aorta was found. The patient died in cardiac decompensation and at the autopsy and histological examination an acquired inflammatory process of rheumatic origin was found. In the third patient, a 16-year-old girl, the angiocardiographic signs also confirmed the clinical diagnosis of an isthmic coarctation. Operation revealed extensive alterations of the thickened aortic arch. The aortic pulsations were greatly diminished. It was impossible to resolve this situation by surgery. The patient died and the autopsy and histological findings revealed the rheumatic origin of the stenosis.

Strongiloidiasis.—The results obtained in the treatment of 20 patients with strongiloidiasis were reported by Drs. José Asfora and Maria Maranhão (*Revista brasileira de medicina,* May, 1958). The treatment consisted of introducing into the duodenum, by means of a duodenal tube, 60 Gm. of Panemax in 250 ml. of distilled water, followed by an ampul of hyaluronidase; two or three minutes later 40 ml. of a 1% solution of gentian violet was given. The Panemax, which contains papain, was given to dissolve the excess of duodenal mucus so as to permit a more direct action of the gentian violet on the worm, and the hyaluronidase was given to promote a wider diffusion of the dye, thus bringing it into a more intimate contact with the worm. Four of the patients vomited after the introduction of the medicine, but 12 of the remaining 16 were cured. This is a better rate of cure than has been obtained with other methods of treatment. Patients who were also suffering from ascariasis were also cured of this infestation. This was due to the action of the piperazine contained in the Panemax.

Cancer of the Hypopharynx.—Dr. J. F. Barbosa reported a series of 59 patients with cancer of the hypopharynx in the February issue of *Revista brasileira de cirurgia.* About 90% were located in the pyriform sinuses. These cancers constituted 52% of the malignancies of the pharynx and 5.3% of those of the upper respiratory system seen. Hypopharyngeal and laryngeal cancers were seen in a ratio of 1:1.8. Only 5% of the patients were women; 32% were chronic alcoholics; and 26% were heavy smokers. In 12.5% the Wassermann test was positive. The right pyriform sinus was more frequently affected (35) than the left (18). Of the 59 patients, 4 had cancers in other portions of the upper respiratory system. The highest incidence was in the group aged 50 to 59 years (25 patients); 49 had epidermoid (squamous cell) carcinoma, 7 anaplastic cell carcinoma, 1 basal cell carcinoma, 1

The items in these letters are contributed by regular correspondents in the various foreign countries.

adenocarcinoma, and in 1 no biopsy was performed. Twenty-five tumors were located in the upper portion of the pyriform sinus, 15 in the lower portion, 16 in both, 4 in the posterior wall of the hypopharynx, and 1 in the retrocricoarytenoid region. Clinical symptoms of metastasis in the neck were found in 49 of the patients when first seen, and in 16 of these they were bilateral. In 20 patients that were operated on, lymph node metastases were found in the surgical specimen. In 15 they were located on the same side as the tumor, in 4 they were bilateral, and in 1 they were on the opposite side; 42 of the patients had had symptoms for less than six months when first seen; 35 complained of pharyngeal pain; 31 had a history of enlarged cervical lymph nodes; 29 were hoarse; 14 had pain radiating to the ear; and 8 had hoarseness with dyspnea. Routine inspection and endoscopic examination give enough data for the clinical evaluation of the disease. Roentgenography shows the extension of the tumor to the esophagus and the depth of the infiltration to the surrounding tissues. Resection alone or combined with postoperative irradiation gives the best prognosis. Resection should be en bloc, removing in continuity the primary lesion together with the cervical lymph nodes and tissues. A conservative operation should be performed on tumors of the posterior wall of the hypopharynx and for small lesions of the lateral wall.

Varicose Veins.—Dr. E. B. Ribeiro (*Portugal médico,* June, 1958) pointed out that stasis of the venous circulation at the level of the common iliac vein causes varicose veins in the legs. For this reason direct treatment of the varicose veins is only a palliative measure and sooner or later the varicosities will recur. For the effective treatment of varicose ulcers, phlebectomy is essential.

FRANCE

Arteritis.—J. Patel and co-workers (*Presse méd.* 66:1245, 1958) studied 186 cases of arteritis and concluded that the emergency treatment of acute ischemia and exacerbations, with or without initial development of necrosis, is based on continuous intravenous infusions or intra-arterial infiltrations of heparin and vasodilators. The earlier surgical treatment is performed the better. It must be followed by close supervision, and the use of vasodilators parenterally in the event of recurrence. Relapses can be prevented by the use of anticoagulants.

Hypoglycemic Sulfonamides. — A. Loubatieres (*Presse méd.* 66:1175, 1958) reported that hypoglycemic arylsulfonamides show a selective tropism for the pancreas. They have no action in the absence of the pancreas or insulin. They stimulate the secretion of endogenous insulin, starting from the β-cells of the islands of Langerhans. They potentiate the effects of exogenous and endogenous insulin and facilitate the formation of new functioning β-cells. The possibility of an antienzymatic action of the substances is not proved. When properly used these sulfonamides make available to the body a complement of endogenous insulin. Some patients seem to benefit from the stimulative action of these drugs on the β-cells. Through such a mechanism a lasting remission of human diabetes may be possible.

Postpuerperal Cerebral Thrombophlebitis.—A. Guicheney and co-workers (*Presse méd.* 66:1158, 1958) studied a series of seven patients with postpuerperal cerebral thrombophlebitis in which two died. The authors concluded that an acute cerebral accident with Jacksonian convulsions occurring in the puerperium should call attention to the possible presence of cerebral thrombophlebitis, especially if eclampsia or embolism can be ruled out. The location of the thrombosis and its gradual extension determine the clinical manifestations. Anticoagulant treatment contributed to the healing of those patients on whom it was used.

Simple Goiter.—L. De Gennes (*Presse méd.* 66:1183, 1958) stated that if by the term simple goiter is meant an increase in volume of the thyroid not accompanied with hyperthyroidism or malignant changes, this type of goiter is the result of a hypersecretion of pituitary thyrostimulin. Most of such goiters are amenable to treatment with thyroxin and its derivatives. In such cases the essential point is not to mistake an exophthalmic goiter for a simple goiter. In a few patients operation may be indicated for cosmetic reasons. If thyroidectomy is performed a large portion of the active tissue should be spared in order to prevent myxedema. In the case of a hard and fibrous goiter of long duration, it is essential not to overlook the possibility of a thyroid carcinoma.

INDIA

Amebiasis.—D. D. Bamji and co-workers treated 95 patients who had amebiasis with two new 4,7-phenanthrolinequinone derivatives known as 11,925 and 11,925C (*Current Medical Practice,* vol. 2, June, 1958). These patients were diagnosed clinically and the diagnosis was confirmed by examination of stools, sigmoidoscopy, and smears from the sigmoidal mucosa. Eighty-four patients had intestinal and 11 had hepatic amebiasis, and 40 patients were treated with 11,925 and 55 with 11,925C. Their ages ranged from 13 to 70 years. The duration of symptoms, particularly frequency of stools, varied from less than 10 days to 1 year or more. Some gave a history of past attacks. The stools contained trophozoites in 55 patients, cysts in 30 and both in 10; 78 had abdominal pain, 23 had weakness and prostration, 15 had marked dehydration, and 4 had fever. Of the 11 with hepatic involvement, 10 had a palpable liver. Only 12 on sigmoidoscopy showed a normal mucosa, the rest showing congestion or ulcers.

Forty patients with intestinal amebiasis were treated with 11,925 and 55 (44 with intestinal and 11 with hepatic involvement) were treated with 11,925C. The total duration of treatment varied from 6 to 15 days. The preparations were available in the form of tablets, 100 mg. each of 11,925 and 50 mg. each of 11,925C. The former was used in a daily dose of 600 mg. divided into three equal doses. The daily dose of the latter varied from 300 to 600 mg. daily in three divided doses, depending on the severity of the condition and whether the infection was intestinal or hepatic. The total amount of the drug used varied from 3 to 10 Gm. of 11,925 and 1.5 to 9 Gm. of 11,925C. The results on the whole were satisfactory. Symptoms were relieved within a few days of treatment, followed soon by disappearance of the parasite from the stool and healing of intestinal ulcers. The 11,925 was more effective than 11,925C in patients with intestinal amebiasis and results were better in patients who showed the vegetative form in the stools than in those with cystic forms. In all patients with hepatic amebiasis, 11,925C was used and the results were good in 8 of the 11, as judged by regression in the size of the liver, relief of pain, improvement in toxemia, general condition, and appetite. In patients who had hepatitis with parasites in the stool, the latter disappeared in the course of treatment. Both preparations were well tolerated. Vomiting occurred in only two patients.

Kyasanur Forest Disease.—T. H. Work (*Journal of the Indian Medical Association*, vol. 31, Aug. 1, 1958) reported that a virus belonging to the Russian spring-summer group was isolated from man and monkeys suffering from a prolonged febrile illness in a district in Mysore State which has been called Kyasanur forest disease. The disease is mainly an affection of the hemopoietic and visceral organs rather than the central nervous system, as is the disease caused by Russian spring-summer viruses. The blood serum showed the presence of this virus at least 2 days prior to the onset and through the first 10 days of the disease. The tissues involved from which the organism was recovered were the heart, skeletal muscle, lung, liver, spleen, and kidney, but not the human brain. The cerebrospinal fluid showed the virus on a few occasions when the blood concentration of the virus was very high. The laboratory diagnosis is based on isolation of the virus from the blood serum in the first 10 days of the disease and demonstration and development of a rising titer of specific complement-fixing and neutralizing antibodies in suspected cases where no virus could be isolated. Although man-to-man transmission has not been observed, the virus is highly infectious. Thus, nine infections occurred in the professional and technical personnel of the Virus Research Center in Poona in the eight-month period of investigation of the disease, and two infections occurred in laboratories of the Rockefeller Foundation in New York. Two infections have been known to occur in persons showing demonstrable antibodies in the serum.

R. L. Rao in another article in the same issue described the clinical features of the disease. The onset is sudden with a headache and chill. The headache is severe and frontal in type and accompanied by aching of the whole body. This is followed by fever which rises rapidly to about 103 F (39.44 C). The temperature is continuous, lasting 5 to 12 days. Most patients show suffusion of the palate with maculopapular hemorrhagic spots. Severe prostration, out of proportion to the duration of the disease and extent of the fever, is present. Gastrointestinal symptoms may appear from the onset and hemorrhagic complications may occur in the middle of the first week. Death may occur within 8 to 12 days of the onset. In severe cases, listlessness, dyspnea, slurring speech, and tremors indicate a grave prognosis. Coma sets in eventually and may last for 12 hours. Those who recover continue to be weak over a long period. The leukocyte count is lowered but gradually returns to normal with recovery. The urine shows albumin and granular casts.

Rheumatoid Arthritis.—K. K. Sikka reported a series of 100 consecutive patients with rheumatoid arthritis (*Current Medical Practice*, vol. 2, June, 1958). The patients were subjected to one week of bed rest and given a vegetarian diet containing 344 Gm. of carbohydrate, 75 Gm. of protein, 60 Gm. of fat, and a very small amount of sodium chloride. The ages of the patients ranged from 9 to 50 (average 30) years, and 68 of the patients were in the age group 21 to 40 years; 70 were manual workers and 90 had to work in a fixed posture (60 sitting and 30 standing). The sitting posture was found to be more important than the nature of the work or the standing posture as a causative factor; 78 had to work in damp surroundings throughout the year; 76 were used to a vegetarian diet; and 60 were accustomed to taking an excess of salt with their meals. A history of arthritis in the family was given by 54 patients; 25% of the fathers, 16% of the mothers, and 13% of the siblings of these patients also suffered from arthritis. The common diet and other environmental conditions might be partly responsible for the familial incidence. The prognosis, however, was not influenced by a family history of rheumatoid arthritis.

A septic focus in the paranasal sinuses, teeth, tonsils, or middle ear was observed in 44 and gave a history of some major infectious, allergic, or venereal disease. Any association with rheumatic fever or recognizable endocrine disorder was much less frequent. Some type of postural deformity such as dorsal kyphosis or forward stoop was observed in 34. Seventy had had symptoms for two years or less before they came for examination. Seventy gave a history of some severe emotional trauma. Of the 40 female patients, 32 were married before the age of 18 and the fertility rate was 63.1. Thirteen did not have any children. A history of some change in the menstrual function before the onset of arthritis was available in 21 of the women; menopause had been reached in 4, and the rest did not show any relation between menstrual function and onset of the disease. A clear-cut history of peripheral circulatory disturbance including cold hands and feet, perspiring hands and feet, blanching of fingers, and chilblain was present in 80 of the patients. The onset was insidious in 75, and 76 complained of some prodromal symptoms such as undue fatigue, loss of appetite, loss of weight, or transient pain in joints. The joints to be involved first were those of the hands, feet, wrists, and ankles, followed by knees, elbows, shoulders, and hips. The joints of the right side of the body were involved first in 75. The skin was red in 74 and hot in 76. Periarticular swelling was present in 70, effusion in 40, marked wasting of muscles in 26, ulnar deviation in 20, and bony ankylosis in 8. Fifty-five were underweight and 10 overweight. Seven had associated disease in other systems than the locomotor. In 51 patients the severity of the disease varied with the weather, being worse in cold wet weather.

The urinary excretion of 17-ketosteroids was below normal in most of the patients in this series and there was a progressive decline in its level with progress of the disease. The uric acid-creatinine ratio was within normal limits in 60 of the patients, less than normal in 29, and higher than normal in 11. The total leukocyte count was within normal limits but the eosinophils tended to increase both in relation to rheumatoid activity and duration of illness; 58 had microcytic anemia; 10 had macrocytic anemia; and 32 had no anemia. The sedimentation rate was markedly raised in 82 at the time of the first examination, slightly increased in 8, and normal in 10. The total serum proteins gave almost normal values but the globulin fraction was increased with reversal of the albumin-globulin ratio in some. The serum uric acid was normal. Radiological examination in 72 revealed such abnormalities as osteoporosis, narrowing or widening of joint spaces, and bony ankylosis.

All patients were subjected to artificial fever therapy by means of intravenous injection of triple typhoid vaccine. Blood specimens were collected before and four and eight hours after these injections for estimation of absolute eosinophils and uric acid-creatinine ratio, and 24-hour specimens of urine were collected for estimating the excretion of 17-ketosteroids. Of the 100 patients, 74 were greatly benefitted by fever therapy. Particularly good results were seen when the vaccine was given in the early stages. The level of 17-ketosteroids in the urine increased in almost all patients. The absolute eosinophil count fell immediately after pyrexia and returned to its original level within 24 to 48 hours. The urinary uric acid–creatinine ratio increased after the pyrexia and then returned to its initial level. Some of the untoward reactions of this therapy were herpes, nausea, headache, vomiting, jaundice due to a coincident infectious hepatitis, and muscle cramps. There was no death following fever therapy, and serious complications such as circulatory collapse and delirium did not occur.

Tetanus.—S. R. Kamat and co-workers (*Current Medical Practice*, vol. 2, June, 1958) stated that in the treatment of severe cases of tetanus, although the value of muscle relaxants is recognized, none of the existing relaxants can be considered ideal. They used gallamine triethiodide in a series of 14 patients. The drug was given intramuscularly except in severe cases when it was given intravenously, especially for the first few days after admission. After a small test dose, the optimum dose for each patient was reached by gradually increasing the amount of the drug a few milligrams at a time. The optimum dose was repeated at four to six hourly intervals. As the rigidity diminished after some days of treatment, the dose was gradually tapered off. On an average, the dose ranged from 40 mg. every six hours to 60 mg. every four hours. Chlorpromazine was given simultaneously as it is believed to enhance the action of gallamine triethiodide and reduces the requirements of sedatives to a minimum. It was given orally or intramuscularly in a dosage of 25 to 50 mg. every six to eight hours.

None of the patients was found to be sensitive to gallamine. Sometimes manifestations due to overaction appeared in the form of cyanosis and shallow breathing which was treated by intravenous injection of 0.6 mg. of atropine followed by 0.5 to 1 mg. of prostigmine intravenously. In a few patients the prostigmine had to be repeated every 15 minutes for two or three doses. In addition the patients received 200,000 to 300,000 I. U. of antitetanic serum intravenously, barbiturates intramuscularly every 6 to 12 hours, and penicillin intramuscularly every 6 hours. Oral feeding was preferred, with some patients requiring intravenous fluids. A fluid intake of 2,250 to 3,000 cc. per day was maintained in all patients. Of the 14 patients, 10 had the severer type and of these 5 died (3 of pulmonary complications, 1 of spasms and exhaustion, and 1 of toxemia). The four with the milder type all recovered. The chief advantage of gallamine was the satisfactory relaxation with adequate and natural respiration in most of the patients. Artificial respiration had to be used only in one patient for a short period. Even those who died lived longer than was expected, and this could be attributed to the action of the drug. The points in favor of this drug are the significant reduction in mortality, satisfactory control of rigidity, and absence of cumulative action.

Treatment of Burns.—Patrao and Narayan (*Current Medical Practice,* vol. 2, June, 1958) treated 10 burned patients with intravenous injections of 6% polyvinyl pyrrolidine and local applications of a sulfothiourea gel after initial blood transfusions and intravenous fluids to counteract acute shock. They compared the results with those in a group of 10 controls treated with blood transfusions, dextrose solution intravenously, and local dressings with cod liver oil, sulfonamide ointment, or penicillin cream. The polyvinyl pyrrolidine was used to prevent the development of toxemia and secondary shock. Patients with burns involving less than 65% of the body surface were selected because those with burns involving 80% or more of the body surface invariably died within two days due to severe shock. In the trial series, there was rapid development of healthy granulation tissue, slough was minimal, and skin grafting could be resorted to earlier than in the controls. Pseudomonas aeruginosa infection was seen only in the control series. Patients in the trial series received only penicillin, none of the broad-spectrum antibiotics being found necessary. Their temperature was between 99 and 100 F (37.2 and 37.7 C) and came down to normal within two to three days, while most of the patients in the control group had to be given broad-spectrum antibiotics to control the toxemia and high fever developing from the fourth day on. Convalescence was shorter with the use of the solfothiourea gel locally. The polyvinyl pyrrolidine was given subcutaneously combined with hyaluronidase in children with no untoward results. Thus as compared to the control group, wound healing was more rapid, toxemia was less marked, and stay in hospital was shortened.

Epinephrine, Morphine, and Strychnine.—B. C. Bose and co-workers (*Indian Journal of Medical Research,* vol. 46, March, 1958) studied the pharmacological activity of the hydrochloride, citrate, and tartrate of epinephrine; the hydrochloride, sulfate, and tartrate of strychnine; and the hydrochloride, sulfate, meconate, and tartrate of morphine. The assay was carried out by determining the pressor effect with epinephrine in cats, the analgesic and respiratory depressant effect with morphine in rats and dogs, and the convulsant action with strychnine in frogs. Of the salts of epinephrine, tartrate had the maximal, citrate the intermediate, and hydrochloride the minimal pressor effect, when equimolecular doses of the salts were used. With morphine also, tartrate had the maximal analgesic and respiratory depressant action. With strychnine, the citrate and tartrate had more convulsant action than the hydrochloride, which was the mildest. On analysis of these results in relation to the molecular weights of the salts, it was noted that the molecular weight had some relationship with the pharmacological action. Thus with morphine, the molecular weight and the analgesic potency were proportionate to each other, although such other physical properties as solubility, permeability, alkalinity, ionization constant, and optical rotation may determine the potency of a particular salt.

JAPAN

The Pay of Physicians.—A barber earns 50 cents in less than an hour but the government pays the physician less than 16 cents to examine a patient and make a urinalysis. The medical society has been up in arms for a number of years demanding a revision of medical fees. The insured and the government, however, resist stubbornly any increase in these fees. After numerous conferences the medical profession has finally obtained an 8% increase in the fees, an amount far less than what was demanded. The health insurance works under a complicated system. Each family head is fully insured and the premium is deducted from his pay while the other members of his household are but 50% insured; that is, when medical care becomes necessary for them they are required to pay half of the total cost. To be half insured, an adult pays about 20 cents per person, per month.

Birth Control.—Having had severe setbacks in World War II in pharmaceuticals, Japan welcomes the opportunity of becoming a pilot plant in researches relative to birth control. Dr. Hayashi stated that a new synthetic corpus luteum-like substance changes the character of the uterine secretion in a way that blocks the entrance of sperms, renders the endometrium inhospitable for the implantation of fertilized ova, and makes the oviducts difficult of passage. Upon the heel of this report comes the news that the death rate has nearly balanced the birth rate, leaving no appreciable increase in population. This has been achieved by a wider dissemination about contraceptive techniques and by authorized interruption of pregnancies. The latter method was not without such untoward complications as sterility, unrelieved pelvic disorders, neuroses, and chronic invalidism. For this reason a noted gynecologist has urged physicians to take the uterine curettes out of their instrument cases and throw them away.

The indications for abortion in Japan include poverty and illegitimacy as well as unfitness to bear a child. The credulous public does not have an adequate appreciation of the dangers associated with abortion. It is erroneously supposed by some to be as simple as the extraction of a tooth. Unless the health or life of the mother is in jeopardy an abortion should not be undertaken. A first pregnancy especially should be carried through to completion even in the face of pending divorce, although the law legalizes abortion under such circumstances. If the husband is ill and unable to provide for the family, the wife who tries to help by working should be given a sympathetic understanding by her relatives. If, despite efforts to prevent conception, pregnancy occurs, for her to seek an abortion may not be the best solution. She should bear the first child for the sake of family happiness. If relatives are unable to help, aid may be obtained from a maternity home. Improvement of this situation is a Herculean task, but a contraceptive drug that can be taken by mouth may provide the solution. The post-war slogan in Japan is "Birth control or procreate and starve."

SWEDEN

Dihydrostreptomycin and Penicillin.—Dr. G. Nilsson (*Svenska läkartidningen*, June 27, 1958) treated several thousand patients who had acute infections of the throat, nose, and ears with a combination of dihydrostreptomycin and penicillin (Streptopenin). This combination was given daily for six days irrespective of any reduction in fever. The total dose of dihydrostreptomycin was 3 Gm. for adults, 2.25 Gm. for children between 10 and 15, and 750 mg. for those under 5. In the spring of 1958 the patients who were thus treated (within the age ranges of 7 and 40) in earlier years were subjected to audiometric tests. None of the 771 thus tested showed any impairment of hearing traceable to the Streptopenin. This combination has such a broad spectrum that it covers about 90% of the pathogenic bacteria hitherto isolated. The preference shown for dihydrostreptomycin as compared with streptomycin in this connection is due to the fact that the former is less likely to provoke allergic complications in the patients and hospital staff, but for prolonged treatment or when pushing the dosage above the safe limit it may be wiser to use streptomycin.

Import of Physicians.—The decision in June by the government to import a new lot of Austrian physicians in order to combat the present shortage has drawn protests from the Swedish Medical Association. In 1950, when the first lot of Austrian physicians was imported, Sweden, with a population of 7 million, had about 4,900 physicians. By June, 1958, there were about 6,500 in addition to 2,790 medical students. At the present rate of expansion, there should soon be between 14,000 and 15,000 physicians at work, whereas at present there is room for only 8,500 to 9,000. In other words, there is a real but temporary shortage, and the association's policy for dealing with it includes among other things the import of Danes, Finns, and Norwegians for whom there is no great language difficulty. Their cultural outlook also possesses many features common to that of Swedes. Negotiations have accordingly been proceeding between the various medical associations in the different Scandinavian countries with a view to the import of young physicians to Sweden. The association fears that the government's policy will dilute Sweden's medical talent to a dangerous degree and lower hard earned standards.

Tularemia.—At a meeting of the Swedish Medical Society, Dr. O. Ljung (*Nordisk medicin*, July 24, 1958) challenged the teaching that tularemia is easy to diagnose thanks to the specificity of its serologic reactions. In districts where tularemia is endemic, a high agglutination titer to Pasteurella tularensis may simply mean that infection has occurred at some time. It does not necessarily mean that the patient's present symptoms are caused by tularemia. An acute attack of tularemia may, however, be diagnosed when the titer rises rapidly in the first two to four weeks of an illness. The Widal test is apt to be puzzling, for Ljung has found that when the same material was sent to two different laboratories one reported titers four times as high as those of the other. Another speaker on the same occasion discussed the guinea pig test and the risk of infecting laboratory workers in the process. The surest road to the correct diagnosis lay in the demonstration of the germ itself (in defibrinated blood in the acute febrile stage of the disease and in the primary discharge in the ulceroglandular and oculoglandular form of the disease). In Sweden the ulceroglandular form is supposed to be more common than the other forms, but as no one knows how common the symptomless and atypical form is, this supposition may be incorrect. There is also much doubt over the relative importance of the different modes of infection. In Sweden it is probably most often conveyed by mosquitos and other insects. Elsewhere attention has been focused on contact with diseased rodents, and during World War II rats and mice in Europe were most often incriminated, being supposed to convey the disease by contaminating food and water.

UNITED KINGDOM

Mobile Physiotherapy.—A report from the Nuffield Provincial Hospitals Trust describes a scheme operating in Belfast for the rehabilitation of the elderly invalid at home. Patients are visited by a mobile physiotherapist who carries with her in a station-wagon a diathermy, shortwave, and radiant heat apparatus; ultraviolet lamps; paraffin baths; etc. Patients for home treatment are selected by a geriatrician who, in collaboration with a general practitioner, prescribes suitable physiotherapy and home care. The treatment is explained to the patients and their relatives. The cooperation of the latter is essential for home management of disabilities in the elderly. Generally speaking the results were good: 32% of the patients were much improved, 35% showed some improvement, and 33% did not respond. In addition to mobile physiotherapy and medical care, some of the patients needed home help, nursing care, laundry service, dietary supplements, and social care. All these needs cannot be met by one authority and cooperation between personnel employed by the health service, local authorities, and voluntary services is necessary. Few general practitioners have the time to coordinate all the services needed by such patients, and the report suggested that in every community there should be a coordinating center to deal with the problem of rehabilitation of the elderly, which is one of the gaps in the provisions of the National Health Service. This center should be staffed by personnel with special experience in this type of work.

Framycetin.—Trials with the French antibiotic, framycetin, produced by a species of Streptomyces decaris, were reported by Burrows (*Brit. M. J.* 2:428, 1958). Because this antibiotic is toxic when given systemically, it is used for local treatment only. Burrows used it to treat over 100 patients with such skin infections as impetigo, eczema, folliculitis, and sycosis barbae. The causative organisms, Staphylococcus pyogenes var. aureus and Streptococcus hemolyticus, were tested in vitro on blood agar for sensitivity. All strains of the former were sensitive to framycetin, but 65% of the streptococci were resistant. These were sensitive to chlortetracycline. Infections caused by staphylococci disappeared fairly rapidly. Nearly 70% of the cases of impetigo cleared within a week, indicating that framycetin is an effective antibiotic in this condition and that it compares favorably with neomycin. Only two cases of skin infection failed to respond to framycetin. No undesirable reactions or cases of sensitivity were recorded. The resistance of Str. hemolyticus to the antibiotic is, however, a serious drawback to its use in infective skin conditions.

Traffic Accidents.—An annotation in the *British Medical Journal* of Aug. 9 states that traffic accidents are becoming one of the greatest public health problems of the day. They caused 5,500 deaths and over 60,000 serious injuries in Great Britain in 1957. Unfortunately such accidents are no longer news and nobody seems to care about them. Meanwhile a certain amount of technical research goes on into the mechanical causes of accidents. Owing perhaps to the greater acceleration and smaller wheels of modern cars, skidding is reported to be increasing. It played a part in 13% of personal-injury accidents in 1954, 14% in 1955, and 15.5% in 1956. More skids due to wet roads are seen in summer than in winter. Part of this might be due to the greater impatience of some drivers on congested roads. At any rate, a careful watch is kept for dangerous sites, and the road surface is altered when found to be defective on test. A yielding rather than a rigid steering wheel shaft would reduce the severity of the injury to the driver. Toughened safety glass is safer than the laminated variety. In relation to the damage done by traffic accidents, the amount spent on research into them—about $200,000 a year—seems small, but mechanical safety is probably only a small part of the problem. The greatest menace is still the inconsiderate, inexperienced, careless, and overconfident motorist.

Dilemma of the Hospitals.—A recommendation in June that nurses' working hours should be reduced from 96 to 88 a fortnight has started a revolution in hospital wards. Nurses are shedding the extraneous duties which have accumulated round their basic role. The shorter working week has to be introduced without more money being provided for extra staff or payment of overtime. Hospitals in many areas are already short of nurses. Nurses and midwives are faced with a challenge. Only reorganization and full use of their skill and experience will bring the additional leisure time they desire. Much will depend on the attitude of managements. Already hospitals in several parts of the country have introduced the 44-hour week. The following letter appeared in the *Daily Telegraph* of Aug. 16, over the name of a hospital matron in London:

"Sir, The fortunes of the nursing profession appear to be at ebb tide. In spite of all the Government has done to improve conditions for nurses, we do not appear to be able to retain them . . . after they are trained. Many emigrate to other countries for better salaries and conditions, some leave nursing for more remunerative work elsewhere, and some marry. . . . Now . . . without being allowed any increase in our numbers of nurses, we are asked to reduce their working hours from 48 to 44 hours per week. . . . If we could attract and engage more nurses to be able to bring about this worthy reduction in working hours, there would be universal rejoicing in our hospitals. But we are forbidden to engage more, and yet we are expected to maintain a 24-hour service to our patients, without reducing our standards of nursing care. . . . Two bright ideas have occurred to the writer which are almost certain to be turned down by the powers that be, but both of which offer a solution to our desperate problem. The first is to reduce nurses' duty time to 44 hours per week and then allow them to work four hours overtime per week (at overtime rates which will have to be introduced) if they so wish. . . . The second is an even more controversial idea. Many people claim that student nurses leave the profession during training because of mental and physical overstrain. They complain that the syllabus of subjects is too full and too comprehensive. Therefore, if nurses cannot study and work without strain in a three years' course of 48 hours a week, how can they master it in a three years' course of 44 hours a week? Would it not be more sensible to reduce the hours per week, but lengthen the training from three years to three and half years or even to four years? This should lessen the strain and ensure that a well-instructed and experienced student went to her State examinations. And it would provide that greatest of all treasures to the hospitals, the fourth-year nurse who could be graded as a junior staff nurse."

Efficiency Experts to Streamline Hospitals.—The hospital service is to be streamlined over the next few years. Industrial efficiency experts are to introduce new methods. So successful has been an experimental organization and methods service that Mr. Walker-Smith, Minister of Health, has decided to put it on a permanent basis and enlarge it. Under a full-time assistant secretary it will review traditional ways of doing jobs and is expected to achieve greater economy and efficiency. While any step likely to improve efficiency would be welcome, some fear that all human feeling may be driven out of hospital treatment in the process. Running the 3,000 state hospitals accounts for 54% of the 2,000 million dollars which the National Health Service now costs annually. Hospitals have been asked to review their purchasing methods. It is hoped to extend the system under which groups of hospitals join together to buy supplies. Hospitals no longer needed to treat tuberculosis cases or sick children are being used for the mentally ill (now occupying 40% of all hospital beds), the aged sick, and others. The aim of the new building now going on is to increase still further the outpatient services and the use made of beds. The strain on the hospitals will be eased in two other ways. There will be more emphasis on disease prevention, and the liaison between hospitals, local health departments, and family physicians will be increased. The ministry aims to improve the status of the general practitioner, who is regarded as a key man. It also believes that strengthening of home nursing services will keep many more people out of hospital.

Sensationalism in Medicine.—The *British Medical Journal* of Aug. 2 reported that Dr. A. K. Bowman of the Scottish Western Regional Hospital Board feared an increase in hypochondriac tendencies and even the development of neuroses among people absorbing the wide range of television programs and press articles on medicine. Already people are going to their doctors with vague fears and anxieties about their health. The impact on their minds of watching a television program on a new treatment could convince them that they might have the symptoms of the disease. A program from the Western Infirmary, Glasgow, on the use of radioactive iodine in endocrine disorders sent several people to their doctors, self-convinced they were ill. Dr. Bowman had heard of only one case in which such a program had had a fortunate result.

The Anti-Smoking Campaign.—The National Society of Non-Smokers reports that in the first two months of its existence the smokers' clinic established in London was attended by about 150 people, of whom about 30 claim to have been cured of the habit. Many of these have established clinics in their homes. Week-end courses for a maximum of 65 tobacco addicts were started in September at $8.40 per "student." Lectures are given by chest physicians, psychotherapists, and health officers. To help those attending to comform to the "no smoking" rule, a hypnotist is in attendance.

Children in Hospital.—In a memorandum entitled "The Welfare of the Ill Child in Hospital," the child psychiatry section of the Royal Medico-Psychological Association stated that the popular notion that the younger the child the better the age for operating applies to only very young infants. Operations between the ages 1 and 5 years should be avoided if possible. It is recommended that once the child is admitted to the ward the parent should help to put him to bed and, if a bath is necessary, assist in this also, because unfamiliar baths can be particularly alarming at this stage. In this way the mother has done her part in conveying her acceptance of the situation to the child. It is recommended that, in spite of administrative difficulties, the question of children wearing their own clothes should be given careful attention. It is considered most inadvisable for children and adults to be together in the same wards, even for a short stay. This also applies to adolescents, who should have their own wards. In the English cultural setting separate wards for adolescents of each sex is advisable, without any rigorous separation when they are up and about.

It is most advisable that young children (up to the age of 4) should be with their mothers when in hospital, but it is admitted that at times the choice must be made between this and ignoring other demands at home. The hospital nurse can act as a mother substitute more effectively to the infant in arms than to the older child. To avoid further confusion in the child's mind and to prevent conflicting loyalties, the number of staff who tend him should be as small as possible (one person ideally). Changing staffs and changing shifts cause distress, which must be borne in mind. The excessively orderly hospital wards, with a few pleasantly arranged flowers, slippery floors, and neatly made beds signifying hygiene and efficiency to the medical and nursing staff, are not advocated. Immobility, when this is not essential, adds to a child's miseries and leads to bad behavior.

The Cost of Health Service.—The annual report on the National Health Service for 1957 states that the total cost of the service for England and Wales was about 1.6 billion dollars, of which about 64.4 million dollars was repaid by those using the service. The hospital service absorbed around 1 billion dollars and 176 million dollars was spent on the general practitioner service. The drug bill was 151 million dollars. The number of new patients fitted with hearing-aids during the year was 52,166, bringing the total to over 580,000 since the inauguration of the service. During the year over 4.5 million pairs of spectacles were provided. An analysis of the cost of the hospital service showed that medical salaries accounted for just under 10%, nursing salaries for just under 20%, and other wages and salaries for about 35%. Salaries and wages accounted in all for 31.2% of the gross cost, compared with 3.5% for drugs and dressings.

There were 19,343 principals and 1,465 assistants in general practice in the service. The number of principals in single practice was 6,381, and 67% of principals were in partnership. Most partnerships consisted of two physicians, and there were only 50 consisting of six or more. There were 1,331 practitioners aged 66 and over, and 616 of these were in single practices. There were 40 assistants in this age group, and 8 of them were aged 76 and over. The average number of patients per doctor was 2,273. The number of general practitioners who attended refresher courses was 1,763. An analysis of the drugs dispensed by pharmacists for general practitioners during the year shows that cough preparations headed the list, accounting for 11.3% of the prescriptions, but only 5.1% of the total cost. Antibiotics, on the other hand, headed the expense list, being responsible for 19.9% of the total cost, but only 7.2% of the total number of prescriptions. The next most expensive item was hormones other than sex hormones but including corticosteroids. These were responsible for 9.7% of the cost but only 2.5% of the number of prescriptions.

Griseofulvin.—A preliminary account of successful treatment of experimentally induced ringworm in guinea pigs by oral administration of the antibiotic griseofulvin was reported by J. C. Gentles (*Nature* 182:476, 1958). This metabolic product of several Penicillium species was markedly fungistatic to many fungi in vitro and showed systemic antifungal activity in plants. It is said to have a low toxicity for mammals. Guinea pigs were infected experimentally with Microsporum canis and treatment with griseofulvin started 10 days later when the lesions were well developed. The dosage was 60 mg. per kilogram daily by mouth. Control animals were given inert tablets. The beneficial effects of the antibiotic were evident clinically within four days of starting treatment, and the highly inflammatory reaction that developed in all the control animals was prevented. Histological examination showed that by the eighth treatment infected follicles were present only rarely, while in the control group almost all the hair follicles were heavily invaded by the fungus. In the treated animals the fungus was present in only the upper part of the hair shaft, the uninfected basal portion being sharply delimited from the invaded part. The uninfected part of the hair was apparently formed during the treatment with griseofulvin and resisted invasion by the fungus. It was also found to be effective on oral administration in guinea pigs experimentally infected with Tricophyton mentagrophytes, and it has also been used successfully for the treatment of Tricophyton verrucosum infection induced in cattle. In vitro it is active in low concentrations against all the common dermatophytes.

Epidemic of Tuberculosis.—An outbreak of pulmonary tuberculosis in a mixed day school of 650, resulting in five cases requiring sanatorium treatment and eight cases of primary tuberculosis, was reported by Dr. H. Bryant (*Med. Officer* 100:120, 1958). A 15-year-old boy in the fifth grade was sent by his family physician for mass x-ray examination and found to have pulmonary tuberculosis. Inquiries then revealed that four cases of tuberculosis in the school had been reported in the preceding 15 months. The whole of the fifth grade (104 children) were x-rayed on large films and were skin-tested. This revealed a boy and two girls in the 15 to 16 year age group with the disease. They were immediately admitted to hospital. By reason of strongly positive skin reactions, x-ray signs, or both, eight other children were thought to have primary tuberculosis. X-ray examination was also offered to the teaching and other staff, and this revealed a teacher working particularly with the upper grades who had suffered from tuberculosis, was under supervision at a chest clinic, and needed treatment. Officially her disease had been quiescent for six years, but full examination revealed a possible cavity. She was admitted to a sanatorium. By this time the school had closed for the summer.

At the beginning of the autumn term arrangements were made for the rest of the children to be skin-tested and mass x-rayed. This revealed two further cases: a boy 17 years of age and a girl who was found to have firmly calcified tubercles in her right lung. It was decided that the most probable course of events was that the infection had emanated from the member of the staff, but there was evidence of a stream of infection confined largely to the fifth grade and particularly in those grades where no less than 87% of the children had positive skin tests. One of the children may have received the infection from the original source and acted as the main source of dissemination among his classmates.

Thrombocytopenic Purpura.—A series of 93 patients with idiopathic thrombocytopenic purpura was studied by E. J. Watson-Williams and co-workers (*Lancet* 2:221, 1958). No treatment other than whole-blood transfusion or hematinics was given to 26 patients. The rest were divided in two groups, according to whether they had a history of more or less than 100 days from the onset of symptoms to the start of treatment (long-history and short-history cases). Short-history cases tended to remit spontaneously, and the onset of such a remission appeared to be hastened by steroid therapy. Splenectomy was followed by a good response in more than 75% of the short-history patients in whom a remission, spontaneous or induced, had not occurred. In long-history cases the chances of a spontaneous remission or of a lasting remission from steroid therapy appeared to be small, but splenectomy was followed by a good result in 50 to 60%.

It was therefore suggested that the initial management of the patient with a short history of purpura should be blood transfusion, to replace any serious blood loss, and administration of 75 mg. of cortisone or 15 mg. of prednisolone every six hours for three weeks. If the platelet count rises during this time, there is a good chance that it will be maintained. If there is no improvement within this period, splenectomy should be performed. The authors observed no evidence that the patient in the acute hemorrhagic phase is benefited by splenectomy. Patients with a long history of relapsing purpura should also be given a three-week course of steroid therapy. As it is exceptional for any remission obtained with such therapy to last for more than 60 days, all these patients should have a splenectomy either during the steroid-induced remission or as soon as it is apparent that the treatment has failed to influence the platelet count. On the other hand, if a remission does occur, it may be justifiable to defer operation in milder cases, especially if it is a response to a first course of steroids. In these circumstances delay is probably harmless provided the patient is kept under constant hematological supervision so that an impending remission can be anticipated and a further course of steroids given as a preliminary to splenectomy. In this series the chances of a permanent remission after splenectomy were about 50% up to 20 years after operation.

Murder by Insulin.—Last December a male nurse was found guilty of murdering his wife by injecting her with insulin. According to V. J. Birkinshaw and co-workers (*Brit. M. J.* 2:463, 1958), in an article giving the full technical details of the medicolegal investigation of the case, this is the first occasion on which such a charge has been substantiated and the first in which insulin has been demonstrated in human tissue, other than the pancreas, after death. When sent for by the husband, the police found the woman dead in her bath, which was empty of water. The husband's story was that he found her submerged in the bath and apparently drowned; he had removed the plug to let the water out and then tried artificial respiration. Postmortem examination revealed that death was caused by asphyxia due to drowning and that at the time of death the deceased was probably under the influence of a drug. Two injection marks were found on each buttock, and examination of the tissues underlying these revealed the presence of a substance that produced hypoglycemia on injection into mice and guinea pigs and stimulated glucose consumption by the isolated rat diaphragm. These biological effects were reduced or abolished by cysteine, pepsin, insulinase, the serum of insulin-sensitized guinea pigs, and anaerobic incubation. As these properties are characteristic of insulin, and no other known hypoglycemic agent could have produced the same combination of effects, it was concluded the active material in the tissue extracts could only have been insulin.

The amount of insulin isolated from the tissues was 84 units in 170 Gm. of tissue. The distribution of the insulin was uneven, there being more in the left buttock, which was the site of the most recent injection mark, than in the right, and more in the superficial than in the deep tissues. The large amount found and the uneven distribution indicated that its presence was not the result of endogenous secretion. It was estimated that at the time of death the buttock tissues contained at least 240 units of insulin—sufficient to produce either the soporific or comatose stages of the hypoglycemic state. The husband explained the injection marks by saying that his wife was pregnant and he had given her injections of ergonovine in an attempt to produce an abortion. No evidence of ergonovine could be found in the body.

Penicillin Sensitivity.—Penicillin cream has been used as the routine treatment of burns at the Birmingham Accident Hospital since 1945, on the grounds that it is the best prophylactic agent against colonization with Streptococcus pyogenes, which so often causes graft failure. In view of the reported increasing incidence of sensitivity reactions to penicillin, it was decided to investigate the matter. Mary R. Davies reported (*Lancet* 2:345, 1958) the findings in a series of 1,419 burned patients. Of the 1,232 who received local penicillin cream, only 6 (0.5%) had a reaction possibly attributable to penicillin, compared with 4 of 54 (7.4%) receiving injections of penicillin. Most of the reactions were mild, and none lasted longer than four days. The sensitivity state may be transient. Six of the 10 patients with sensitivity to penicillin in this investigation had no reaction to subsequent local application of the antibiotic. In view of these findings it was concluded that penicillin cream can justifiably be applied prophylactically.

CORRESPONDENCE

PLEA FOR IMPROVED TRAINING IN SYPHILIS

To the Editor:—For many years syphilis has been accepted as a public health responsibility, and its management, to a greater extent than that of most diseases, has been concentrated in clinics supported entirely or partially by public health funds. This can be explained by the fact that a large number of patients are in the lower socioeconomic groups and by the fact that the epidemiology of infectious syphilis not only is a public health responsibility but also is best conducted by public health personnel. Under these circumstances it is inevitable that control of the disease depends largely on the adequacy of public health programs. However, no program of disease control can be successful without the cooperation of the entire medical profession. The diagnosis and treatment of syphilis have never been confined to clinics; like other diseases syphilis has always been a responsibility of general medicine.

Within recent years many syphilis clinics have been closed, with the result that tax-supported services depend increasingly on private physicians for the management of syphilitic patients. Many state health departments now provide fees to private physicians for this purpose. Regardless of whether fees are paid by the patients or by other agencies, it is obvious that syphilis cannot be controlled without maximum cooperation between public health services, hospitals, and private physicians.

Unfortunately, syphilis has been peculiarly neglected by the medical profession in general since the early years of this century. The venereal stigma may be partially responsible, but the chief explanation seems to be that management of the disease has been largely in the hands of specialists. The advent of rapid treatment and the recent marked decline in the number of cases now prohibits further concentrated specialization in syphilis, with the result that general practitioners must accept responsibilities that were previously left to specialists. Lack of interest in syphilis by the medical profession in general is difficult to understand from a scientific point of view, because the disease continues to present numerous unsolved problems.

Among the infectious diseases syphilis probably ranks first in the complexity of its manifestations and of its immunological mechanisms. It has numerous features that seem to be unique in human infections. Osler's epigram, "to know syphilis is to know medicine," might be worded more exactly, "to understand syphilis is to understand immunology." The gaps in our knowledge of immune mechanisms are shown more clearly in the study of syphilis than any other single disease. Syphilis still presents a fascinating challenge to scientific medicine. But, in spite of unanswered questions, the disease can now be diagnosed with reasonable accuracy, and its treatment is relatively simple. Nevertheless, outside of special clinics, the management of syphilis frequently is characterized by inexcusable confusion and by errors of omission and commission.

Errors of omission include the following:

1. Failure to obtain serologic tests for syphilis (STS) from patients who are likely to have been exposed to the infection or who have signs and symptoms suggestive of the infection. A possible diagnosis of syphilis should be considered in every patient with a genital lesion or with skin and mucous membrane lesions suggestive of syphilis. There need not be primary or secondary syphilis before laboratory tests are done. Syphilis should be considered when patients have early infectious lesions; yet in numerous patients with such lesions the condition has been undiagnosed for weeks because the physician did not think of syphilis.

2. Often patients with positive STS recorded on their hospital charts are discharged from hospitals without anyone paying attention to the positive test. This applies to patients who enter the hospital because of some disease other than syphilis.

3. Too frequently, no history of previous STS or previous treatment for syphilis is obtained in patients who are diagnosed as having syphilis. It is difficult to obtain accurate histories of syphilis from many patients, but useful information can usually be obtained by careful questioning. Without history of previous STS and previous treatment the physician often is working in the dark in managing seropositive patients.

4. Frequently there is failure to report cases that are diagnosed and treated.

Errors of commission include (1) repeated treatment of patients solely because of the persistence of positive STS, (2) excessive total doses of penicillin and an unnecessary number of injections because of relatively small individual doses, (3) repeated courses of treatment given in a vain effort to reverse late signs and symptoms of syphilis that are irreversible, (4) incorrect diagnoses of "early" and "late" cases because no attempt was made to obtain adequate histories that were actually available, and (5) in a patient with a positive STS, syphilis is accepted as the cause of signs and symptoms that are due to something else.

In a complex disease such as syphilis it is inevitable that mistakes will be made and that there will be differences of opinion about difficult diagnoses. No one is infallible, but the above-mentioned mistakes are so common in hospitals and in physicians' offices as to warrant attention and remedy by organized medicine.

Since the advent of penicillin, many articles on the management of syphilis have been written by physicians working with the disease. Carefully conducted studies inaugurated originally by a committee of the National Research Council and subsequently sponsored by the U. S. Public Health Service have been reported. The studies were conducted by a number of cooperating hospitals and clinics. They have provided data that are certainly as authoritative as any that are now available, and they have resulted in complete agreement by the physicians in charge on certain fundamental principles of diagnosis and treatment.

Differences over theories, unusual cases, and exact dosages for the various types of syphilis are to be expected. Dosage schedules for any disease must be flexible. Public health departments usually advise minimal schedules of penicillin therapy based on their effectiveness in extensive trials. State departments of health differ somewhat in their advised schedules, but none advises total dosages as great as 10 million units of penicillin for asymptomatic syphilis or repeated treatments because of persistent positive STS in patients treated for late syphilis. Yet it is not unusual to find asymptomatic persons with syphilis being treated with more than 10 million units of penicillin by private physicians and in some hospitals. It has been well known for at least the past 25 years that it is futile to re-treat patients with late syphilis solely in the hope of reversing positive STS to negative. Yet many physicians seem to be unaware of this fact, or they ignore it.

The dearth of suitable material for teaching purposes in medical schools has resulted in little or no instruction about syphilis to many medical students. Hospital interns well trained in medicine often have no hesitancy in declaring their ignorance of syphilis. It is no longer feasible to attempt to teach syphilis in medical schools through examination of patients; but should not all medical schools provide a few hours of didactic instruction to students based on the modern concepts of the management of syphilis as accepted by public health services in this country and by the World Health Organization? Such instruction cannot cover all of the manifestations of the disease or devote time to its numerous intricacies. However, it could provide reasonably uniform information about the importance of histories in syphilis, the interpretation of serologic tests, and general principles of treatment.

There is no reason why syphilis should be relegated to a hinterland of medicine. The disease is still relatively common in the lower socioeconomic groups. In 1957 in New York state alone, 106 individuals were admitted to New York state mental hospitals because of general paresis. Most of them will remain in the hospitals for the rest of their lives. Modern antisyphilitic therapy can check the progress of general paresis and prolong the lives of paretics, but it cannot restore function to permanently damaged brains. Crippling neurosyphilis and cardiovascular syphilis can be prevented by treatment during the many years after infection that usually intervene before serious damage has occurred.

In 1956, Malzberg, of the New York State Mental Hygiene Department, reported that in 1950 there were more paretics receiving custodial care in New York state hospitals than in 1920, yet the rate per 100,000 population of admissions to state hospitals because of general paresis in 1920 was 7.9 compared to 2.8 in 1950 and 0.7 in 1957 (Malzberg, *Ment. Hyg.* 40:583-596 [Oct.] 1956). This paradoxical finding is explained in part by the fact that paretics now live longer and so remain in the hospitals for many more years. The fact that there are now almost 3,000 patients in New York state hospitals because of general paresis should alone awaken the medical profession to its responsibilities in syphilis control. If syphilis is to be controlled, a new interest must be established within the medical profession, and the place to begin would seem to be the medical schools.

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PRECIPITATION TEST AND SYSTEMIC LUPUS ERYTHEMATOSUS

To the Editor:—An article entitled "Evaluation of Simple Precipitation Test for Systemic Lupus Erythematosus" by Jones and Thompson appeared in The Journal, March 22, 1958, page 1424. Since that time, we have had the opportunity to perform this test in the lupus erythematosus laboratory at the Los Angeles County General Hospital 313 times in 258 patients with various disorders. The results of this test have been correlated with results obtained from the rotary method (Dubois and Freeman, *Blood* 12:657-670 [July] 1957). The precipitation reaction in our experience is completely nonspecific for systemic lupus erythematosus.

These findings are similar to those of Lee and Schultz published in the Correspondence section of The Journal, July 19, 1958, page 1552. In view of the extensive use being made of this test throughout the United States; we thought that it would be of value to publish our results as well, so that this test would not be used as a screening procedure for systemic lupus erythematosus. The table outlines the results in various disorders. The precipitation test was performed simultaneously on serum and plasma from the same blood samples on which the L. E. cell tests were performed. In general, plasma gave a slightly higher titer of the precipitation reaction than did serum. The method of Jones and Thompson was followed in detail, and the degree of positivity was checked on a sample sent us by Dr. Jones so that our interpretations of the test reactions are comparable to his.

The most important groups to observe in the table are the untreated patients with active systemic lupus both with and without L. E. cells. Note that in 27 such patients who had 37 tests, 22 of the tests were completely negative, in contrast to 100% positive results in Jones' 13 similar cases. The reaction, it is true, as emphasized by the originators of it, does tend to become negative with spontaneous or therapy-induced remissions. The other important point to note from the table is that the incidence of positive results in patients with classic rheumatoid arthritis with negative L. E. cell tests was as great as in the patients with typical systemic lupus erythematosus. All the other positive results are listed in the table, including the large number in patients with Laennec's cirrhosis.

Results of 313 Precipitation Tests for Systemic Lupus Erythematosus Correlated with L. E. Cell Factor and Status of Patient

	Cases, No.	3+	2+	1+	Negative
Systemic lupus erythematosus, treated*					
L. E. cells present	30	1	7	4	28
L. E. cells absent	21	1	4	5	23
Untreated in remission					
L. E. cells present	8	1	1	1	7
L. E. cells absent	11	...	2	1	12
Untreated disease, active					
L. E. cells present	18	2	6	2	13
L. E. cells absent	9	1	1	2	9
Discoid lupus erythematosus					
With systemic manifestations	5	...	...	1	8
Without systemic manifestations	14	2	1	2	13
Rheumatoid arthritis (L. E. cell test negative)	53	3	13	5	37
Laennec's cirrhosis	11	1	6	2	5
Scleroderma	3	...	...	1	3
Dermatomyositis	2	...	...	...	2
Glomerulonephritis (acute and chronic)	7	...	1	...	6
Thyrotoxicosis	2	...	2	...	1
Congestive heart failure	1	...	2	...	...
Tuberculosis, active	1	...	1	...	1
Miscellaneous diseases	31	...	...	...	35
Normal	18	...	...	...	25

* Either steroids and/or antimalarials.

An attempt was made to determine whether this precipitation test correlated with any of the other routine laboratory tests. One hundred sixty patients had total protein and albumin globulin ratios determined by the salt fractionation method (Howe or Wolfson), and cephalin cholesterol flocculation and thymol turbidity tests were also done. These were performed within a week of the precipitation (p-toluene-sulfuric acid) and L. E. cell preparation tests. The only correlation found was that whenever a positive precipitation test was present (1+ or more), hyperglobulinemia was almost invariably present. The precipitation test was always negative if the total globulin levels were normal. Unfortunately in half the cases of hyperglobulinemia, the precipitation test was negative, so it had no value as a screening test for hyperglobulinemic states. There was no correlation between cephalin cholesterol flocculation or thymol turbidity and this test. Total cholesterol level determinations in 26 patients did not correlate with the precipitation reaction. It is our impression that the test is completely nonspecific. It is of value only when positive, and then it indicates the presence of hyperglobulinemia. As a diagnostic procedure for systemic lupus erythematosus, it should be abandoned.

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MISUSE OF DRUGS

To the Editor:—Recent information reveals that a potentially serious situation may be developing in regard to the proper use of the two formulations of the new antibiotic kanamycin (Kantrex) which is currently available on the U. S. market.

To clarify the differences two points should be emphasized: 1. Kantrex Intramuscular is the only dosage form available for the treatment of systemic infections caused by kanamycin-sensitive micro-organisms. 2. Kantrex capsules are indicated solely for preoperative intestinal antisepsis and for the treatment of local infections caused by kanamycin-sensitive micro-organisms—and not for systemic use, since the formulation for oral use is not absorbed from the gastrointestinal tract.

Although the above information has been the subject of a recent letter sent to 145,000 practicing physicians in the United States, it seems desirable to bring the problem to the attention of the readers of THE JOURNAL. By this means it should be possible to identify the precise use of the new antibiotic to the medical profession of this country and thereby prevent the improper use of Kantrex capsules in the treatment of patients critically ill with systemic infections.

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THE LEISURE CORNER

PLAYING THE MODERN ORGAN

Many new channels have opened up in the field of music in recent years. The modern organ now meets demands never before associated with this instrument. Its range and repertoire have been considerably broadened, and its versatility is so extensive that it startles those persons who have never had any formal musical training. Many physicians would like to play a musical instrument; many go through life without learning to play; others start when they are very young. An increasing number of physicians, however, turn to music in their mature years, many selecting the organ because it is a practical instrument for home use, it is easy to play, and it gives complete relaxation.

Probably the earliest form of the organ (in use in 500 B. C.) was an instrument the Greeks called the Pipes of Pan. This instrument consisted of hollow tubes of different lengths, and the player blew into or across the open upper-ends of the pipes. About three centuries later, Ctesibius of Alexandria constructed an instrument in which air was forced into the pipes by means of water power. Byzantium was the first city to become an important center for building organs. It was here that the pneumatic organ, with wind furnished by bellows, was first used. Along about 600 A. D., during the time of Pope Vitalian I, the church organ came into use. Then, between the 14th and 19th centuries, the Germans took a keen interest in the building of organs. In the United States, the first American organ played by electrical power was introduced at the Centennial Exposition in Philadelphia in 1876.

The reed organ, better known as the harmonium or melodeon, was a common instrument in the churches and homes of the country districts during the latter part of the last century. The tones, ranging from low to high were made by one or more series of different-sized reeds, similar to those found in the accordion or the harmonica. The keys opened valves to let air into the reeds. The pressure of the air was maintained by pumping up and down on two pedals. Present-day harmoniums are blown with a suction blower similar to that found in a larger pipe organ.

In general, the pipe organ is the largest and most powerful of all musical instruments. Any type of music can be played and most orchestral tones may be simulated. Instrumental tones such as those belonging to the violin, cello, double bass, clarinet, trumpet, oboe, bassoon, English horn, and saxophone may be duplicated, not to mention those which belong to the organ alone. The modern organ is probably the easiest of all instruments to play. One does not have to practice for long hours, and in a matter of minutes you find yourself playing simple tunes. The reason for this is that the instrument maintains sustained tone; press a key, and the tone remains until you release it. One-finger tunes sound surprisingly attractive for this reason, and it allows for delay between notes. Moreover, it permits a beginner to search for the next note without incurring a feeling of self-consciousness.

Any type of music you like may be played, including classical, jazz, folk tunes, church music, waltzes, fox-trots, rumbas, and the like. It is possible to simulate the score of a musical instrument if a song sounds best on any particular instrument. All of the string, woodwind, and bass instrument tones are right at your finger tips, to be employed individually, together, or in full orchestra. In addition to the basic instruments, one can blend thousands of fascinating tones, and it is this type of "flavoring" that results in much pleasure in playing the modern organ.

Modern organs are light in weight and can be moved readily from one room to another. All one has to do is unplug the console and tone equipment. There is very little maintenance cost after several years. Even the amount of electrical current used is extremely low. The modern organ uses electric amplification to increase the volume of sound and has three factors in common with the pipe organ: 1. The tone may be sustained or held for as long a time as wanted. 2. The sound may also be increased or decreased while being sustained. 3. The same kind of range of tone-volume from soft to loud is found in both instruments. These three factors make the electronic organ sound like the pipe organ, and many electronic organs are used in their stead. A primary difference, however, is that the electronic organ tone, always heard through loud speakers, makes good ensemble or group effects.

Electronic instruments utilize radio tubes to make the sound impulses louder. These impulses are put in motion by pressing down a key on the keyboard. In one type, an electric magnet is employed to catch the various speeds of impulses or vibrations which establish the different musical tones. A second type amplifies sound of the harmonium. Tone screws are placed above each reed, and these screws pick up the musical tones derived from the vibrating reed tongue. Still another type of electronic instrument amplifies sound by putting a small microphone inside the box of reeds.

Finally, a brief comment about the structure of an organ. Its main parts consist of a keyboard, valve mechanism, pipe assembly, and a blower. When the player presses the keys an electrical impulse is conveyed to the valve mechanism which alters it into a pneumatic impulse, one made by air, and lets air into the pipes; the sound is then produced. The keyboard is set in a case called the console. Ordinarily there are several rows of keys, sometimes as many as six. These are known as manuals, for they are played with the hands. A six-manual organ is divided into the great organ, the swell organ, the choir organ, the solo organ, the bombarde, and the echo organ. In addition, there is a pedal organ consisting of large wooden keys at the base of the console. These are played with the feet. The different sets of pipes are controlled by stop-knobs at the keyboard or stop-keys above the keyboards. Pipes vary from 0.5 in. to 32 ft. in length. Organs vary greatly in size, with the smallest having about 370 pipes and the largest more than 40,000 pipes. The bigger the organ the larger the range of musical effects which it can play. Some organs are played with rolls, much like those of a player piano.

BOOK REVIEWS

Cerebral Palsy in Childhood: The Aetiology and Clinical Assessment with Particular Reference to the Findings in Bristol. By Grace E. Woods, M.D., D.P.H., D.C.H. With foreword by Peter Henderson, M.D., D.P.H. Cloth. $6.50. Pp. 158, with 42 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44 Triangle West, Bristol 8, England, 1957.

Most recent books on cerebral palsy have been mere reviews of the literature and therefore of relatively little scientific value. It is refreshing to find this publication based on clinical observations and presented in a factual manner. It is an elaboration of a doctorate thesis and is based on a study of 301 children with cerebral palsy. It presents the various types of cerebral palsy according to their clinical characteristics and attempts to correlate these with certain etiological factors. Although the case material is not large and the method of investigation is retrospective, the study is, nevertheless, critical and attempts to derive conclusions from the facts presented rather than to jam the facts into the framework of a preconceived notion. The material is presented logically. The author finds a high correlation between (1) spastic paraplegia and prematurity, (2) spastic hemiplegia and difficult or forceps delivery, and preeclampsia, and (3) athetosis and jaundice. He does not discuss treatment but limits himself entirely to etiological factors and symptoms. The literature is well reviewed, although misquoted in several areas. The book is well documented with case reports and excellent photographs showing the various clinical syndromes. The statistics are of questionable validity, but this does not detract from the clinical implications. This is one of the best monographs yet written on the correlation between etiology and clinical syndromes in cerebral palsy.

Endocrine Pathology of the Ovary. By John McLean Morris, M.D., Associate Professor of Gynecology, Yale University School of Medicine, New Haven, Conn., and Robert E. Scully, M.D., Clinical Associate in Pathology, Harvard Medical School, Boston. Cloth. $8.50. Pp. 151, with 75 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1958.

The authors have produced a valuable contribution to the knowledge of ovarian pathology and gynecologic endocrinology. Such a book must of necessity be written by two trained observers thoroughly familiar with pathology and clinical gynecology. Only by such a team approach to the complex problem of presenting to other medical men the basic significance of the ovarian abnormalities here presented can a clear concept of what is known and what is still to be discovered be obtained. The material is clearly presented and begins with a review of the histology of the ovary from the fetus through the period of sexual maturity, including cell rests of adrenal cortex and male elements composed of Sertoli and Leydig cells found in the ovarian hilus. The embryology of the gonads and its significance in understanding various types of tumor formation is stressed together with hormone production and sexual differentiation, normal and hermaphroditic.

Hormone assays are discussed, and their value and limitations are frankly stated. A brief description of the techniques used is included. Estrinism, defeminization, masculinization, and hyperadrenocorticism are described. Neoplastic and non-neoplastic abnormalities of the ovary are adequately covered. A classification of functioning ovarian tumors which seems both clear and logical is presented. The format of the book is simple, the type is clear and readable, and numerous valuable photomicrographs make this a valuable reference work for the student, pathologist, and clinician wishing to compare these with slides from tumors not yet diagnosed. An extensive bibliography of the world

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

literature adds greatly to the value of this book for reference. A colored plate depicting the gross appearance in cut section of the more important tumors, as seen at operation, would be valuable to the surgeon in some cases in deciding the proper surgical procedure.

Forensic Medicine. By Keith Simpson, M.D., Reader in Forensic Medicine, University of London at Guy's Hospital, London. [Third edition.] Cloth. $7. Pp. 352, with 138 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Edward Arnold (Publishers) Ltd., 41-43 Maddox St., London, W. 1, England, 1958.

Although the laws quoted in this excellent book are those of England, Wales, and Scotland, the scientific procedures and reasonable inference to be drawn from such procedures are universal in application. The book was written for the practicing physician and for those beginning in the field of forensic medicine, but those adept in the subject can glean much from the author's wide experience, which is sharply reflected in the pages. The book is divided into two major divisions: forensic medicine and toxicology. In neither section are minute details for carrying out specific actions or tests delineated, although here and there one finds rather simple ones, such as laboratory tests for seminal fluid, outlined. In general, the author suggests that if one does not know what to do he should do nothing and contact someone who does know the proper handling of the material at hand. The book is adequate to enable a physician who has had no special training in forensic work to obtain knowledge so that he may assist the coroner or medical examiner. It is not the purpose of the book to make a well-rounded expert of the reader. Vignettes from the author's experience are generously used to illustrate particular points. The section on toxicology is not analytical, since few tests are given. Unfortunately, the weights and measures referred to in this section are not in the metric system. The type is clear, and the illustrations, with few exceptions, are excellent.

Essentials of Chemical Pathology. By D. N. Baron, M.D., Reader in Chemical Pathology, Royal Free Hospital School of Medicine, London. Cloth. 25 shillings. Pp. 247, with 28 illustrations. English Universities Press, Ltd., 102 Newgate St., London, E. C. 1, England, 1957.

The scope of this small volume is limited to the essentials of chemical pathology (clinical biochemistry to the American reader). This book was derived from a series of lectures given by the author, and its style is readable in a way not ordinarily found in textbooks and references. The discussion of each biochemical system is primarily directed at the normal chemistry of the system and then to the departures from normal that constitute pathological conditions. Quite properly for a book of limited scope, the more common abnormalities receive the most attention with only a brief reference to the rare though perhaps more interesting conditions. This book is not concerned with laboratory procedures, although the more common tests are outlined in an appendix. The only details given are those that involve the patient or physician directly (i. e., diet or fasting, sampling times, and interpretation of results). The details of the laboratory tests are not included. The author's objective is to bridge the gap between academic biochemistry and application of chemical laboratory data to clinical problems. It is primarily a textbook and should be of greatest value to the student for a review. Although it does not pretend to be comprehensive, it should prove useful to the practicing physician as a short reference volume, since it contains a great deal of information concisely stated and made easily accessible through a thorough index. The most serious weakness is the omission of any discussion of hemoglobin and iron metabolism.

Lehrbuch der Gynäkologie. Von Prof. Dr. med. Heinrich Martius. Unter Mitwirkung von Käthe Droysen. Fifth edition. Cloth. 49.80 marks; $11.85. Pp. 426, with 456 illustrations. Georg Thieme Verlag, Herdweg 63, (14a) Stuttgart, West Germany; [Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16], 1958.

Since the last three editions of this book have appeared at intervals of about two years, there have not been many changes in them. The table of contents of this new edition is identical with that of the fourth. The book is 12 pages longer and contains eight more illustrations. Since there has been significant progress in endocrinology in the past two years, the data on this subject have been brought up to date. Otherwise, the present and fourth editions are almost identical. This is by no means a fault, because all the editions of this book have been excellent. Without doubt this edition will be as popular in German-speaking countries as its predecessors, because Martius is still the outstanding author of German textbooks of obstetrics and gynecology.

Modern Treatment Yearbook 1958: A Yearbook of Diagnosis and Treatment for the General Practitioner. Edited by Sir Cecil Wakeley, Bt., K.B.E., C.B. Cloth. $6. Pp. 312, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Published for Medical Press by Baillière, Tindall & Cox, Ltd., 7 & 8 Henrietta St., Covent Garden, London, W. C. 2, England, 1958.

This English compilation contains a series of articles covering practical aspects of diagnosis and treatment of common diseases encountered in medicine, surgery, and obstetrics. The photographs are collected in a separate section in the middle of the volume, making reference to them somewhat cumbersome. The topics discussed are well chosen and range from complications of head injuries to renal aspects of diabetes. The discussions are concise and adequate. The purpose of the book is to bring the general practitioner up to date on therapeutic procedures of common disorders. This purpose has been admirably fulfilled.

BUSINESS PRACTICE

The American Medical Association, in cooperation with the Sears-Roebuck Foundation, has published a brochure on the Business Side of Medical Practice. This brochure will be published serially, excluding the illustrations, some of the sample forms, and the artwork, in the Business Practice section of The Journal, *in the interest of its readers.*—Ed.

SETTING UP PRACTICE

To most young physicians, setting up medical practice is the long-awaited climax to years of study and work. The long, laborious preparatory period is over; the medical degree is won. "Now," the young doctor tells himself, "all I have to do is hang out my shingle and begin practicing medicine."

He learns quickly that it is not always as simple as that. He discovers that he must make many important decisions—decisions affecting his entire life and his success in the medical world.

Within a relatively short interval, he must decide where to practice, determine the type of practice he wishes to develop, and solve the practical problems of establishing it. He must finance his practice, purchase equipment and supplies, find a home for his family, and establish the proper relationships with the official body granting him a license to practice and with hospitals and medical organizations.

He finds he must attend to dozens of details and make countless decisions. Suddenly the man of science must deal competently with real estate people, bankers, lawyers, salesmen, suppliers, and sometimes with painters, plumbers, electricians, and a host of other service people. For the first time, the physician comes up against the realization that if he wants to practice medicine, he must also be a businessman.

Reversing the Scientific Focus

The long years of medical training prepare the physician for meeting medical problems he encounters in caring for his patients but rarely equip him for handling the practical problems of setting up and conducting his practice. He gets little business training, yet the changing aspects of medical practice today call for an understanding of basic business principles and techniques. A generation or two ago setting up practice was simple. It involved only the purchase of a few surgical instruments and a few pieces of office furniture and the outfitting of a little black bag. Today the equipment and diagnostic aids required in the modern medical office require a big financial outlay. Today's doctor could hardly pay his office rent on what was considered a good monthly income 25 years ago.

Striking the Proper Balance

Ideally, a physician strives to seek the proper balance between the scientific and business aspects of medicine. The practice of medicine must never become a business, but there is a business side of medicine. The wise doctor realizes that, in establishing his practice on a sound foundation businesswise, he actually is setting up a self-operating pattern which in the long run gives him more time to devote to the practice of medicine.

The application of good management principles to the medical office is important to both the physician and his patients. The doctor who ignores rudimentary business principles soon finds himself short of cash and beleagured by the income tax people. Furthermore, his patients today no longer are as indulgent about haphazard record-keeping, erratic billing, and the errors that creep into inefficient systems. It's only human nature for a patient to wonder if a physician who can't keep his own office affairs in order is competent to make decisions regarding his life and health.

Good management makes sense—for it means the doctor controls his practice, he doesn't let the practice run him! The dictionary calls management "the *judicious use of a means to accomplish an end,*" and, in the medical office, that end is giving more and better service to patients. Practice management calls for the application of the scientific approach so well known to the physician. It means that in solving the problems of setting up and carrying on his practice the doctor considers all possibilities and makes the best decision in light of all circumstances. The result: a well-built practice which will run smoothly and with a minimum of attention to business detail later.

This how-to-do-it manual, encompassing the views of a number of experts on medical practice management, is designed to help a physician build and conduct a successful practice. It is not a complete answer book but a guide to some of the possible solutions to a physician's practice problems. It is written to help a physician make his own decisions more intelligently and to put him on the track of other sources of information he may require.

Ironically, the lack of management know-how among established physicians led to development of this publication. It is the outgrowth of a need which became apparent when the A. M. A. and the Sears-Roebuck Foundation prepared a medical facility planning guide for physicians in 1955. Its aim is to help physicians build practices successfully and rapidly, with a minimum of costly mistakes.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Nonspecific Granulomatous Disease of the Stomach: A Clinical Pathological Study. M. B. Goldgraber, J. B. Kirsner and H. F. Raskin. A. M. A. Arch. Int. Med. 102:10-24 (July) 1958 [Chicago].

Chronic granulomatous inflammation is a process initiated usually by a group of harmful agents which bring into defensive activity a specialized cellular mechanism—the reticuloendothelial system. The basic lesion contains at the periphery concentric reticular fibers, while the center is occupied by epithelioid cells, with or without giant cells. Granulomatous inflammation has been found in a variety of apparently unrelated conditions, including infections, Hodgkin's disease, sarcoidosis, malignant tumors, reactions to minerals and lipids, and the hyperergic state. The authors record 4 cases of granulomatous disease of the stomach. One of them is classified as part of regional enteritis; another, as part of the eosinophilic granuloma syndrome; the 2 remaining cases are of an undertermined nature. The histopathological features encountered, namely, tissue eosinophilia and granuloma formation, seem to suggest an allergic state in both cases. In cytological studies giant cells were recovered from gastric washings in 3 of the 4 patients. Cytological studies appear helpful in the diagnosis of granulomatous disease of the stomach.

Arthritis Associated with Ulcerative Colitis: A Clinical and Pathological Study. E. G. L. Bywaters and B. M. Ansell. Ann. Rheumat. Dis. 17:169-183 (June) 1958 [London].

The authors feel that the arthritis associated with ulcerative colitis has not been fully delineated, possibly because it is generally thought to be merely rheumatoid arthritis occurring in ulcerative colitis, rather than a special entity as suggested by Hench and others in 1935 and later. The authors review this problem on the basis of observations on 37 patients who had both arthritis and colitis and 30 of whom were seen personally. In the majority the colitis was of mild to moderate severity. The arthritis tended to be a recurrent mild and often migratory synovitis, localizing in 1 or 2 of the joints longest affected and frequently remitting. Only rarely did a severe generalized form of arthritis occur. Nodule formation with a persistently positive differential agglutination test was seen in only 2 patients. Roentgenographic changes did not differ from those seen in rheumatoid arthritis, although healing tended to occur more frequently and there was a moderately high incidence of sacroiliac involvement. In view of the nature of the arthritis, together with the negative differential agglutination test usually found, it is concluded that a separate form of arthritis is associated with ulcerative colitis. It is similar to that occurring acutely in erythema nodosum due to other causes, but it may last longer and may recur; in such cases chronic residual changes closely resembling those of rheumatoid arthritis may be seen.

Renal Function in Patients Recuperated from Severe Hypertension with Treatment. A. Caeiro, G. Palmieri and C. Fierro. Rev. Asoc. méd. argent. 72:45-51 (Feb.) 1958 (In Spanish) [Buenos Aires].

Eighteen patients with severe hypertension of varied etiology were observed. These patients were invalids because of cerebral and cardiac lesions. One patient had grave cardiac insufficiency, 5 patients had severe essential hypertension, 7 had malignant hypertension, 2 had pyelonephritis, and 3 had chronic nephritis; in addition, 1 patient had Cushing's syndrome. So far as renal function was concerned, 1 patient had grave renal insufficiency with uremia; 17 patients either did not have renal insufficiency or the insufficiency had been compensated. The renal function was studied in all the patients during the period of hospitalization and during the ambulant period of about 17 months after discharge from the hospital. In carrying out the treatment, the patients were placed on a diet for those with hypertension; 15 were given hypotensive drugs, 1 had a sympathectomy performed, and 2 were subjected to either a sympathectomy or an adrenalectomy in association with hypotensive drugs. All the patients showed a marked clinical improvement and were able to return to active life. In each case the eye fundus improved; the exudates, hemorrhages, and edema of the papilla disappeared. The size of the cardiac area remained unchanged, and the renal function did not change.

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1949 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

According to blood pressure readings, the systolic pressure was lowered from 201 to 149 mm. Hg and the diastolic pressure from 124 to 91 mm. Hg. The 2 patients with pyelonephritis died several months after having had a marked improvement in the malignant symptoms of hypertension. One patient died of a cerebrovascular hemorrhage and another of renal insufficiency. The results of this study show that the actual treatment of severe hypertension by means of diet and either hypotensive drugs or hypotensive operations or both causes reversibility in the symptoms of invalidism and in the malignant phase of the disease. The treatment is symptomatic. It does not modify the natural course of the disease.

Haemophilia-Like States in Girls. A. J. Quick and C. V. Hussey. Lancet 1:1294-1298 (June 21) 1958 [London].

The authors had available for repeated studies 4 girls with a bleeding condition resembling hemophilia. The first patient was noted to bruise easily in early infancy, but her first serious bleeding occurred at the age of 18 months when she cut the frenum of her upper lip. At 3 years she had a large hematoma on the medial aspect of her left thigh and a swollen knee. She required several transfusions. Hemophilia was diagnosed on the basis of the normal prothrombin time and a prolonged clotting time. These findings were confirmed when, in addition, a very poor consumption of prothrombin was found. No correction was observed when the patient's blood was mixed with that of a known hemophiliac. Physical examination was normal except for old ecchymotic spots, a hematoma on her right elbow, and swelling of the sole of her right foot. When she was last seen at the age of 10 years her blood was studied, and the same tests were run simultaneously on the blood of a patient known to have severe hemophilia. No deformity, enlargement, or limitation of movement of any joint was found, but when the right knee was flexed, a sharp click was constantly heard. True hemarthrosis was not shown on roentgenography. Most of the severe bleeding was intramuscular. The bleeding disorder in this child is indistinguishable from classical hemophilia, except that the family history is negative. For this reason, the cause of her condition is best explained by mutation, but this is speculation, and proof can only be established by her offspring. All her sons should be bleeders and all her daughters carriers, if this assumption is correct.

The second patient, in addition to defective consumption of prothrombin and defective generation of thromboplastin, had a prolonged prothrombin time. Her disease was similar to, or probably identical with, the entity recently named "Stuart clotting defect." The third and fourth patients had a normal prothrombin time but a very prolonged bleeding time, defective consumption of prothrombin, and faulty generation of thromboplastin. The suggested name "pseudohemophilia B" has been tentatively accepted to designate this disease. A bleeding disorder in a girl is especially serious, because little is known about the hemostatic control of menstrual bleeding. Nearly all the women with a hemophilia-like condition have been more than 20 years old when they were first studied, suggesting that their bleeding was relatively mild. Some of these patients have normal menstruation.

The Clinical and Histologic Spectrum of Pyelonephritis. G. E. Schreiner. A. M. A. Arch. Int. Med. 102:32-40 (July) 1958 [Chicago].

Surveys have shown that less than 1 in 5 cases of pyelonephritis is diagnosed before death. This situation obtains not only because of the prolonged and insidious nature of the disease but also because of its protean clinical manifestations. Pyelonephritis is one of the great imitators. The present study presents a brief classification of pyelonephritis, a review of known etiological and bacteriological factors, a description of the histological spectrum of the lesion produced in the kidney (which has been gathered largely from living patients by means of renal biopsy), and a survey of the clinical spectrum of pyelonephritis. The author decries the use of vague or erroneous terms, pointing out that pyelitis, if used correctly, should be limited to an inflammatory process confined to the epithelium of the renal pelvis. Pathological studies have shown that this lesion must be an exceedingly transient one. Focal inflammatory reaction in the renal parenchyma is present almost invariably when the epithelium of the renal pelvis has been invaded by bacteria. This term has done harm; by its implication of a superficial infection, it promotes a sense of security which is unwarranted in the initial phase of pyelonephritis.

In a simple classification pyelonephritis is divided, first, into 3 stages: acute, chronic, and healed. Secondly, it is classified as to its effect on the kidneys as atrophic or nonatrophic, depending on whether the size of one or both kidneys has been altered with the scarring process. Third, the disease may be unilateral or bilateral, a fact not always easy to ascertain. Fourthly, pyelonephritis is classified as primary if no known etiological condition is present to explain its genesis or secondary if it occurs after one of the known causes of pyelonephritis.

With increasing use of antibiotics, pyelonephritis in many hospitals has approached respiratory disease as the most important infectious disease, and recently in several hospitals it has exceeded the incidence of respiratory infection. Scars of pyelonephritis have been reported in as high as 20% of the hospital population randomly sampled at autopsy. The author gives the following list of etiological factors in secondary pyelonephritis: instrumentation, altered nephron architecture (intrarenal obstruction), extrarenal obstruction, pregnancy, diabetes, calculus or nephrocalcinosis, congenital anomaly, trauma, hypogammaglobulinemia, properdin deficiency, defective general resistance, and foci of infection—a source of bacteremia. The histological spectrum of pyelonephritis, largely gathered from biopsy material, is presented. Twenty-one different presenting syndromes are briefly described and represent the clinical spectrum of chronic pyelonephritis.

Waldenström's Macroglobulinemia: Clinical and Pathological Report of a Case Resembling Multiple Myeloma. J. W. Hampton. New England J. Med. 258:1293-1296 (June 26) 1958 [Boston].

The author reports on a 68-year-old patient with the classic features of Waldenström's macroglobulinemia who was admitted to the Medical Center of the University of Oklahoma in Oklahoma City. The patient had progressive pancytopenia, hyperglobulinemia, and a hemorrhagic disorder. There was a macrocytic normochromic anemia with an increased number of reticulocytes, a relative lymphocytosis, and a reduced number of platelets. The clot-retraction time was prolonged, and the petechiometer test was positive, but the bleeding, prothrombin, and clotting times were normal. The urine was negative for the Bence Jones protein test. Hyperglobulinemia and abnormal cephalin flocculation were notable. The bone marrow contained large mast cells in which dense nuclear chromatin was irregularly clumped with pale-staining nucleoli. Biopsy of an axillary lymph node was performed, and the findings were interpreted as indicating reticulum-cell hyperplasia. Because of the tentative diagnosis of multiple myeloma, urethan was prescribed but was ineffective. Hemorrhage continued to be a problem, and transfusions were frequently given. The failure to demonstrate skeletal lesions and the unusual appearance of the bone-marrow aspirations suggested the possibility of Waldenström's macroglobulinemia. The Sia water test subsequently carried out gave positive results. A heavy white flocculum, formed when a drop of the patient's serum was added to distilled water, prompted an analysis of the serum by ultracentrifugation. Twenty per cent of the total protein was shown to be a macroglobulin with a Svedberg constant of 19. The patient died after an illness of only 8 months' duration, death resulting from a massive intracranial hemorrhage. On gross and microscopic postmortem examinations the most striking finding was the widespread presence of hemorrhages involving all organs.

Treatment for Waldenström's macroglobulinemia was unsatisfactory in this patient and in others whose cases were collected from the literature. Splenectomy and the administration of urethan and antimetabolites useful in leukemia have all been tried. At best there is only temporary reversal of some of the clinical manifestations. Supportive therapy, especially transfusions to relieve the profound anemia, is recommended.

Phenprocoumon (Marcumar): I. An Agent for Short-Term Anticoagulant Therapy. E. McC. Priest and H. G. Pauli. Am. J. Cardiol. 2:61-70 (July) 1958 [New York].

Koller and Jakob reported from Switzerland in 1953 that the prothrombin time value and blood factor 7 can be maintained at a constant level with phenprocoumon (Marcumar). Data regarding this drug have appeared in the European literature, but phenprocoumon is little known in this country. Priest and Pauli describe observations on 160 patients who received phenprocoumon as an agent for short-term anticoagulant treatment in the Henry Ford Hospital in Detroit. The effects of different initial doses of phenprocoumon were studied in 134 patients. The drug proved to be a potent anticoagulant. Thirty to 36 mg. of phenprocoumon produced the desired hypocoagulability of the blood as promptly as an initial dose of 51 mg., when these doses were followed on the second and third day, depending on findings in the Quick test, by doses which ranged up to 9 mg. After therapeutic levels (prothrombin complex time, 25 to 35 seconds) had been reached, these were maintained with daily doses of phenprocoumon of 3 or 4.5 mg. Both low and excessively high prothrombin time values were only rarely encountered with this dosage range. Thus, in general, the desired depression of the blood clotting mechanism was easily maintained.

The incidence of hemorrhagic complications was 3.75%. Vitamin K_1 (Mephyton or Konakion) was an effective antagonist against undue depression of the blood clotting mechanism. These findings were compared with those reported by the Swiss workers and by American and British students. It is concluded that phenprocoumon is an effective agent for short-term anticoagulant therapy and that selected therapeutic prothrombin time values can be maintained with comparative facility.

Familial Mediterranean Fever. H. Heller, E. Sohar and L. Sherf. A. M. A. Arch. Int. Med. 102:50-71 (July) 1958 [Chicago].

The authors describe a disease which they define as a heredofamilial syndrome of undertermined pathogenesis in persons of Mediterranean stock; it becomes manifest, as a rule, in infancy or adolescence and is characterized by short recurrent bouts of fever accompanied by pain in the abdomen or chest or one or more multiple joints, singly or in various combinations. Sometimes erysipelas-like erythemas appear. A certain number of cases terminate fatally through supervening renal involvement. This is not a new disease, nor were the authors the first to describe it. Typical examples have been described especially in French papers of the last decade. Various names have been attached in the case reports, the best known of which are probably "benign paroxysmal peritonitis" and "periodic disease." With the aid of certain diagnostic criteria, the authors selected out of a mass of heterogeneous observation cases characteristic of a syndrome to which they applied the term "familial Mediterranean fever." To these cases they added 74 new ones observed by themselves.

The entity is of rather frequent occurrence with definite heredofamilial features among ethnic groups of Mediterranean stock. The authors describe the clinical picture and the laboratory findings of the syndrome, its chronicity, and its characteristic recurrent attacks of fever, with painful manifestations in abdomen, thorax, joints, and skin. In a certain percentage of cases the relentless course and the frequent renal involvement terminate in amyloidosis and death. Data on the pathological anatomy, etiology, and pathogenesis are meager, and the authors give reasons why they consider the disorder as belonging to the group of racially linked heredofamilial diseases with an inborn biochemical error. The clarification of the many problems in the etiology and pathogenesis of the disorder will be advanced by its recognition as a separate entity, distinct from the various conditions described as "periodic disease." Commenting on the term "benign paroxysmal peritonitis," the authors say that the disorder is far from benign and that it is not acceptable to place the entire emphasis on the abdominal crises. The term "familial Mediterranean fever" is suggested as a solution to the problem of terminology until more basic etiological and pathogenetic facts become known.

SURGERY

Control of Complete Heart Block by Use of an Artificial Pacemaker and a Myocardial Electrode. W. L. Weirich, M. Paneth, V. L. Gott and C. W. Lillehei. Circulation Res. 6:410-415 (July) 1958 [New York].

The combined use of an artificial pacemaker and a myocardial wire electrode has been demonstrated to be an effective method of controlling the heart rate at low voltages and low-current amplitudes. The cardiac output and mean aortic pressures of dogs have been restored to preblock levels through the application of repetitive electric stimuli to the ventricular myocardium. No complications from insertion or removal of the wire in the myocardium were noted. The heart rates of 18 patients with complete heart block after closure of septal defects have been successfully controlled with this method. This effective control of postsurgical heart block has been the single most important contribution to the rapidly decreasing mortality of open heart surgery.

The Treatment of Congenital Aortic Stenosis with Valvotomy During Cardiopulmonary Bypass. F. C. Spencer, C. A. Neill and H. T. Bahnson. Surgery 44:109-124 (July) 1958 [St. Louis].

The authors present their experiences with cardiopulmonary bypass in the surgical treatment of 12 patients with congenital aortic stenosis. This lesion is receiving more attention because of the possibility of operating on these patients under direct vision. The earlier treatment with dilators introduced through the ventricle without direct vision was not generally satisfactory because of the fibrous type of stenosis encountered and because of the danger of producing aortic insufficiency. The interest of these authors in the surgical treatment of this lesion has recently heightened because of the sudden death of children with few preceding symptoms or signs other than electrocardiographic abnormalities and because of the increasing conviction that fibrous stenosis in children progresses to calcific stenosis in adults with worsened prognosis and decreased possibilities of adequate surgical treatment. There were 11 males and 1 female in the series. The ages at operation ranged from 3 to 19 years; 1 patient was under 5 years, 1 between 5 and 10 years, 6 between 10 and 15 years, and 4 over 15 years. The patients had been followed preoperatively in the Harriet Lane Home cardiac clinic in Baltimore for between 1 and 19 years; 6 patients had been followed for more than 5 years. A cardiac murmur was detected during the first year of life in all but 3 patients in whom it was heard at 2, 3, and 5 years respectively. Most patients were completely asymptomatic during infancy and early childhood.

The 12 patients with congenital aortic stenosis were successfully treated by incision of the stenotic area during cardiopulmonary bypass with potassium-induced cardiac arrest. The stenosis was valvular in 8 patients and subaortic in 4. All the patients were diagnosed preoperatively as having aortic stenosis, but in only 1 of the 4 subvalvular cases was the exact site of stenosis recognized. In retrospect the diffuse quality of the systolic thrill, the presence of left axis deviation, and the presence of a greater degree of cardiomegaly than usual may all be possible pointers to a subvalvular site. Ventricular fibrillation in 6 of the 12 patients was easily treated with electrical defibrillation. Fused commissures were present in each stenosed valve; these were opened by incision along the center of the fused commissure. The type of commissural fusion was surprisingly similar in all 8 patients with valvular stenosis. Moderate insufficiency followed valvotomy in 2 patients. The results indicate that aortic valvotomy may be done with cardiopulmonary bypass with low risk and satisfactory results. Early operation should be considered in children with symptoms and progressive changes in the electrocardiogram of left ventricular hypertrophy with ST depression and flattening or inversion of T waves over the left precordium.

Clinical and Hemodynamic Observations in Pure Mitral Insufficiency. J. Ross Jr., E. Braunwald and A. G. Morrow. Am. J. Cardiol. 2:11-23 (July) 1958 [New York].

Mitral insufficiency not accompanied by other valvular lesions is relatively uncommon. This report is concerned with the clinical and hemodynamic findings in 23 patients with pure mitral insufficiency. Electrocardiographic, roentgenographic, and clinical features in the 10 patients with pulmonary hypertension are contrasted with findings in the patients without pulmonary hypertension. In the former group pulmonary vascular resistance was elevated, and clinical evidence of right heart failure was frequently present. In general, marked fatigability was noted in patients with abnormally low resting cardiac outputs. The left atrial pressure pulse contour was characteristic in 20 patients; similar changes in the left atrial pressure contour occurred in the remaining 3 patients after the infusion of arterenol. Left atrial pressure contour analysis proved to be of considerably greater diagnostic value than analysis of the pulmonary capillary wedge pressure tracing. Left atrial Z-point pressures were significantly elevated in 17 of the 23 patients, and left ventricular and diastolic pressures were elevated in 7 of the 12 patients. Histological examination of the lungs in 4 patients with pulmonary hypertension showed extensive proliferative changes in the pulmonary vasculature.

Pulmonary Tuberculosis and Peptic Ulcer. E. Waingortin and H. J. Lorge. Dis. Chest. 34:55-59 (July) 1958 [Chicago].

The authors analyze observations on 27 patients with pulmonary tuberculosis at the Worcester County Sanatorium, Worcester, Mass., in whom peptic ulcer was demonstrated either before admission or during the course of hospitalization. Roentgenologic proof of the ulcer was available in all cases. The patients are divided into 4 groups. The first group includes 12 patients in whom tuberculosis developed after surgical treatment for peptic ulcer; 9 had been subjected to total or subtotal gastrectomy, 2 to gastroenterostomy, and 1 to "closure" of a gastric ulcer, but this patient required gastrojejunostomy at a later admission. The interval between abdominal surgery and onset of tuberculosis ranged from less than 1 year to 37 years. In the second group of 4 patients gastrointestinal symptoms appeared after surgical treatment of pulmonary tuberculosis by thoracoplasty. The interval between operation and discovery of the peptic ulcer varied from 4 months to 7 years. There were 3 duodenal ulcers and 1 gastric ulcer. These patients also had received chemotherapy including *p*-aminosalicylic acid before the onset of abdominal symptoms. In 1 patient a gastric ulcer developed in the wake of cortisone therapy for severe rheumatoid arthritis. The third group included 7 patients in whom pulmonary tuberculosis preceded the onset of peptic ulcer; the latter was discovered at autopsy in 3. Six patients had received oral chemotherapy before the ulcer manifested itself. In the 4 patients of the fourth group, as in the first, the ulcers, 1 gastric and 3 duodenal, preceded the onset of tuberculosis, but the treatment of the ulcer was medical rather than surgical.

The authors believe that tuberculous patients, in whom gastrointestinal symptoms develop after thoracic surgery, oral chemotherapy, and especially after *p*-aminosalicylic acid medication, should be investigated for peptic ulcer. Patients in whom gastrectomy is to be carried out for peptic ulcer should have chest x-ray films made before operation. If a pulmonary lesion is found, the presence of active tuberculosis should be investigated, and after the operation the pulmonary lesion should be kept under careful observation, not only during the immediate postoperative period but also later. Finally, a chest x-ray film should be part of the check-up examinations of all patients who have undergone gastrectomy.

Intrarenal Arteriovenous Fistula with Hypertensive Cardiovascular Disease: Review of the Literature. F. Milloy Jr., E. H. Fell, R. F. Dillon and A. M. Zayas. Am. J. Surg. 96:3-11 (July) 1958 [New York].

Arteriovenous fistulas of the renal vessels are of particular interest because of their ability to produce not only the systemic effects of an arteriovenous fistula but also, theoretically, those of a Goldblatt kidney. That intrarenal arteriovenous fistula is a rare lesion is proved by the fact that the authors were able to find only 11 cases reported in the literature; 6 of these were congenital, 4 were acquired, and 1 was of undetermined etiology. They believe that the case observed by them is the 12th recorded of intrarenal arteriovenous fistula and the 3rd of traumatic etiology.

The patient was a 32-year-old woman who was hospitalized because of dizziness and headaches of 8 years' duration, ankle edema, and easy fatigability of 5 months' duration. More recently she had also noted vague substernal pain. She had been treated for high blood pressure for 6 years. Her past history included a story of having injured herself in the left flank when she fell on a knife at the age of 10.

At the time of this accident the bleeding was stopped by means of a skin clip. Because of the heart failure and decreasing cardiac reserve, surgical intervention was elected. The left kidney was explored. The renal artery and vein were dissected as far as possible into the substance of the kidney hilus in the hope that the fistula could be identified and closed without nephrectomy. When it became apparent that the fistula was well within the kidney parenchyma, nephrectomy was performed. The patient had an uncomplicated postoperative course. Today she no longer has symptoms of cardiac failure. However, her blood pressure has remained moderately elevated during the first postoperative year.

Although arteriovenous fistulas of other systemic vessels do not produce a significant hypertension, those of the renal vessels may. Clinical opinion indicates that there may be ischemia distal to an arteriovenous fistula, and experimental evidence indicates that there is ischemia and decreased pulse pressure distal to an arteriovenous fistula. The authors believe that the hypertension associated with renal arteriovenous fistula, particularly of acquired etiology, may be on the basis of a Goldblatt effect resulting from the altered renal hemodynamics produced by the fistula.

Splenic Arterial Aneurysm. J. N. Ward-McQuaid. Brit. M. J. 2:1448-1452 (June 21) 1958 [London].

The most common pathogenetic factor in splenic artery aneurysm is arteriosclerosis followed, in order of frequency, by embolic phenomena, portal hypertension, congenital causes, trauma, and infection. Five cases of operative removal of splenic aneurysms are reported. One death followed rupture of an aneurysm, and 1 recovery after rupture is reported in a pregnant woman. In the 3 patients with unruptured aneurysms, the diagnosis was made by the roentgenologist prior to operation, and these patients survived. The treatment of choice in this condition is resection of the artery and splenectomy.

Acute Emphysematous Cholecystitis: A Case Report and Review of the World Literature. A. Edinburgh and A. Geffen. Am. J. Surg. 96:66-75 (July) 1958 [New York].

The authors are concerned with the clinical and pathological entity that has been described under such terms as "acute pneumocholecystitis," "pyopneumocholecystitis," "acute gaseous cholecystitis," "gas gangrene of the gallbladder," and "emphysematous cholecystitis." They present a new case and review the 49 cases previously reported in the literature. A 62-year-old woman was hospitalized with a 4-to-5-day history of severe, intermittent abdominal pain in the right upper quadrant associated with interscapular radiation. She had been receiving antibiotic therapy at home for several days. Seven or 8 years previously attacks of epigastric pain had developed, radiating to the interscapular area. Since then these attacks had recurred intermittently, usually clearing within 24 hours. Roentgenologic examination of the abdomen, particularly of the gallbladder region, revealed gas within the lumen and the walls of the gallbladder. Emphysematous cholecystitis was thought of, since roentgenologic examination on the following day again showed the gallbladder filled with gas which extended into the wall. The film taken with the patient erect showed a fluid level within the gallbladder. Mottling within the lumen was suggestive of radiolucent calculi. Films taken 2 weeks later showed a decrease in the amount of air in the gallbladder. The patient never appeared acutely ill.

The patient was readmitted 6 weeks after the onset of the acute attack for an operation. A large inflammatory mass was found to occupy the right subhepatic space, and a subhepatic pericholecystic abscess was suspected. The omentum was separated from the liver in the vicinity of the gallbladder, which was not immediately visualized. An abscess containing a few ounces of pus was entered. When the abscess cavity had been evacuated, a structure resembling the gallbladder could be seen lying freely within it. When lifted out, this structure was found to be the gallbladder containing stones. There were no stones in the pericholecystic abscess. The gallbladder apparently had not grossly perforated. A catheter was placed down to what appeared to be the cystic duct and was sutured in place. A cigarette drain was also placed in the abscess cavity. The patient was discharged after 16 days.

Of the 49 cases of acute emphysematous cholecystitis in the literature, only 7 were reported before 1940. Bacteriological studies revealed a wide range of organisms. Anaerobic cultures, despite their importance, were not taken in at least 11 instances. Clostridium organisms were noted in about 40% of the cases, and Escherichia coli in 30% of those in which cultures were taken. Acute emphysematous cholecystitis is a rare pathological condition of the gallbladder, characterized by the growth of gas-producing organisms within that organ, the seat of an acute cholecystitis. The presenting clinical picture is usually indistinguishable from that of an acute cholecystitis. The diagnosis is made by roentgenologic studies of the abdomen, which demonstrate the gallbladder distended with air in its lumen and within its wall. Operation within the first 24 to 72 hours after onset of symptoms, with cholecystectomy, if technically feasible, is the treatment of choice. However, conservative management with the use of large doses of antibiotics has led to satisfactory results in the few patients so treated.

Stump Carcinoma Following Gastric Resection for Ulcer. C. DeBray, M. Bouvry and P. Roches. Schweiz med. Wchnschr. 88:631-634 (June 28) 1958 (In German) [Basel, Switzerland].

The authors discuss the problem of stump carcinoma after gastric resection for peptic ulcer. Eleven cases observed since 1950 at the Hospital Bichat, Paris, and 113 cases collected from the literature comprise this report. The interval between resection and the occurrence of symptoms ranged between 5 and 37 years, with a mean average of 14.9 years. Dysphagia constantly appeared as the initial symptom and was associated with regurgitation and other elements of the esophageal syndrome, such as retrosternal pain and excessive salivation. A relapse with long symptom-free intervals was not uncommon. Hematemesis was the initial sign in 4 instances. Asthenia, emaciation, and anemia were present at the first indication of difficulty. A palpable tumor was a late symptom, and anemia was recognizable only when it was quite severe. The source of carcinoma of the stump was often difficult to determine. In 49 of the 113 cases reviewed, it arose from the stump itself, in 31 it arose at the mouth of the anastomosis, in 13 other cases specific information as to the point of origin was lacking, and in the remaining 20 cases gross extension of the tumor did not permit accurate localization. The tumor was located in the vicinity of the cardia or in the fornix in 16 of the latter cases, and in 8 of the 11 cases actually observed by the authors. This form of carcinoma is more frequent than previously supposed and occurs more often after resection for perforating ulcer than in the stomach not operated on, usually growing on the greater curvature or in the vicinity of the cardia. Although the diagnosis can be accomplished by roentgenography, gastroscopy, and ultimately biopsy, the prognosis is uniformly poor.

Ruptured Aneurysm of the Splenic Artery. C. L. James. Am. J. Surg. 96:18-23 (July) 1958 [New York].

A 62-year-old woman had been treated for moderate hypertension for several years. The present illness started with a sudden severe pain in the upper abdomen, and the patient was hospitalized about 2 hours after the onset. The pain became more generalized and radiated into the back and left shoulder; during the night the abdominal pain was partially relieved by narcotics. The following morning, as the patient was expelling an enema given in preparation for a colon study, she went into collapse. It became apparent that a major intra-abdominal hemorrhage was occurring, and immediate laparotomy was advised. With the patient under general anesthesia, with several simultaneous transfusions, the abdomen was opened through a long midline incision. Blood gushed forth in great quantities. The brightest blood appeared from the left upper quadrant of the abdomen, and compression of the splenic pedicle slowed but failed to stop the hemorrhage. Continued pressure of the splenic pedicle and compression of the abdominal aorta below the diaphragm controlled the hemorrhage. When the aorta was released, blood was seen to spurt from a ruptured aneurysm in the midportion of the splenic artery. The aneurysm was thin-walled, saccular and appeared to be about 2.5 cm. in diameter. The splenic vessels were ligated proximally; the spleen and aneurysm were removed.

This case, although not diagnosed preoperatively, presents many classic features of ruptured splenic artery aneurysm. It is the 10th reported case of this rare and usually fatal condition with surgical recovery. When rupture occurs, it is usually fatal, unless aggressive surgical treatment is promptly initiated. The diagnosis before rupture is very difficult, unless the lesion is kept in mind and a pulsating mass is palpable or the aneurysm is demonstrable roentgenologically. Rupture may be suspected if there is initial sudden severe pain in the left upper quadrant, with mild shock followed by a temporary period of improvement and then sudden and almost complete collapse with findings characteristic of massive intra-abdominal hemorrhage. The treatment of choice is massive transfusion and supportive measures with prompt removal of the ruptured aneurysm and spleen.

Hemangioendothelioma of Stomach. B. Andreassen. Tidsskr. norske lægefor. 78:522-523 (June 1) 1958 (In Norwegian) [Oslo].

Hemangioendotheliomas are malignant vascular tumors in which proliferation of endothelial cells dominates. The tumors belong to the sarcoma group and are rare but can occur in various places, including the stomach. The symptoms here are not characteristic. They resemble the symptoms in carcinoma of the stomach. Hemangioendotheliomas, like other sarcomas in the stomach, are soft tumors with little tendency to obstruct the stomach lumen. The patient's general condition is affected less than in carcinoma. Free hydrochloric acid is often present in the stomach. A probable diagnosis can be made only by comparing the clinical and roentgenologic findings. Treatment is surgical. Partial gastric resection or a total gastrectomy and removal of possible metastases to the lymph nodes give results far better than those in carcinoma. In the case reported, in a woman aged 64 years, with a history of duodenal ulcer 8 or 9 years earlier, symptoms of the hemangioendothelioma had been present for 10 months before the operation. Roentgenologic examination of the stomach and duodenum was made 3 times before tumor infiltration was diagnosed. The benzidine reaction in the feces was positive. Anemia gradually developed, but in the main the general condition was good, with little loss of weight. There was free hydrochloric acid in the stomach. Radical removal of the tumor was possible, and since no signs of metastases were found, the prognosis has been considered good.

Inverted Electrolyte Response Following Total Adrenalectomy. J. G. Llaurado and V. T. Pearse. Metabolism 7:301-314 (July, pt. 1) 1958 [New York].

The authors point out that most of the theoretical arguments which deny a leading role to the adrenal cortex in the metabolic changes seen after trauma originate from the concept of "permissive action" elaborated earlier by Ingle in an attempt to give a rational explanation of the perplexing observation that the metabolic response which occurs after experimental fractures in intact rats occurs also in adrenalectomized rats maintained on a constant amount of adrenocortical extract. The paper deals with the changes in electrolyte excretion in 2 patients subjected to total adrenalectomy and presents a comparison between the response to removal of one adrenal with no steroid replacement and that to removal of the remaining adrenal with a minimal maintenance dose of corticoids consistent with safety. To illustrate better the significance of these results, they are compared with data on a patient subjected to total adrenalectomy and given large doses of a corticoid and on patients undergoing operations which did not involve the adrenal. The 3 patients subjected to adrenalectomy were all women who had undergone radical mastectomy earlier for carcinoma of the breast. On coming to the hospital, they all presented widely disseminated metastases, and bilateral adrenalectomy and oophorectomy offered a reasonable hope of palliation.

The first patient was maintained exclusively with 9α-fluorocortisol acetate. At the time this patient was studied little was known about the adequate dosage of this compound, and retrospectively it was realized that too large amounts of the 9α-fluorocortisol acetate had been given. It was also realized that the drug alone does not provide an adequate corticoadrenal replacement, because its cortisol-like effect is too small in comparison with its aldosterone-like effect. The corticoid replacement for the other patients was specially designed to investigate their electrolyte response. Twenty-four-hour collections of urine were made during the whole period of study, starting one or more days before each operation. The sodium and potassium ion estimations in urine and in serum were made with flame photometer. The urine electrolyte values were expressed in terms of the sodium/potassium ratio, since it has been shown that this ratio is the most accurate and sensitive index of aldosterone-like activity. After the removal of the first adrenal, conducted without steroid replacement, there was a considerable fall in the urine sodium/potassium ratio, reflecting increased aldosterone secretion. This fall is a common feature of the normal pattern of the metabolic response to surgery. After the second adrenalectomy and maintenance with minimal dose of corticoids, the decrease in this ratio was not observed; indeed, there was a marked elevation of the sodium/potassium ratio. It is concluded that hyperactivity of the adrenal cortex in the form of increased aldosterone secretion is the principal factor responsible for the electrolyte changes which occur after surgical trauma. It is suggested that previous contradictory results obtained by other workers were due to administration of large doses of cortisone, to cumulative effects of cortisone given intramuscularly preoperatively, or to both.

NEUROLOGY & PSYCHIATRY

Peroneal Paralysis—A Hazard of Weight Reduction. B. E. Sprofkin. A. M. A. Arch. Int. Med. 102:82-87 (July) 1958 [Chicago].

It has long been known that weight loss is an important predisposing factor in the development of a pressure paralysis of the peroneal nerve, often referred to as "leg-crossing palsy." The almost universal interest in reduction diets and a coincidental disposition to spend long hours sitting with crossed legs before a television set may lead to an increasing incidence of peroneal paralysis due to compression and manifested by foot drop. Nine illustrative cases are presented to emphasize the history of this benign neurological disorder which must be differentiated from more serious disorders of the nervous system. The author briefly describes the anatomy of the common peroneal (external popliteal) nerve and its branches, the deep and the superficial peroneal nerves. The superficial peroneal branch innervates the peroneus longus and brevis, which evert the foot. Since the deep peroneal branch innervates the dorsiflexors of the feet and the extensors of the toes, a foot drop will result when its function is interrupted. The exaggerated elevation of the knee to enable the affected foot to clear the ground and its subsequent slap as it strikes the ground result in the diagnostic "steppage gait." In most of the cases of peroneal nerve compression associated with leg crossing, the common peroneal nerve seems to be involved rather than one of its divisions. When the common peroneal nerve is injured, the affected foot cannot be dorsiflexed at the ankle, nor can its toes be extended, owing to involvement of the deep peroneal branch. There is also inversion of the foot, since the peroneal muscles supplied by the superficial peroneal nerve are also affected. This combination of paralyzed muscles usually leaves the foot in an equinovarus position.

Wherever a peripheral nerve is superficially situated, it is susceptible to damage by compression. In only 2 patients in this series was there a history of alcoholism, and in neither of these patients was there any evidence of other neuropathy. Diabetes was not present in any of these cases. The foot drop was on the left in 5 cases, on the right in 2, and bilateral in 2. The average age of the patients was 54, and 8 of the 9 patients were more than 50 years of age. The average weight loss was about 25 lb. (11.3 kg.). Three patients were convalescing from a myocardial infarction, and 2 others were being treated by a psychiatrist for depression. With respect to differential diagnosis, it is important not to confuse this relatively unimportant mononeuropathy with cerebral vascular disease or spinal cord neoplasm, on the one hand, and psychoneurosis, on the other.

Study of the Incidence of Multiple Cases of Poliomyelitis in One Family: Anamnestic Contribution. S. Scarabicchi. Minerva pediat. 10:556-558 (May 19) 1958 (In Italian) [Turin, Italy].

The author reviews the records of 806 patients with poliomyelitis, who were hospitalized at the pediatric clinic of the University of Genoa during the past 5 years, in order to determine the incidence of multiple cases of poliomyelitis in individual families. One incidence of multiple cases of poliomyelitis involving 2 children in a family took place in 1953; no such incidence developed during 1954 and 1955; 5 incidences involving 2 children in each family (total of 10 patients) took place in 1956, and incidences involving 3 children in each of 2 families and 2 children in each of 3 families (total of 12 patients) took place in 1957. The author believes that the more frequent incidence of multiple cases of poliomyelitis in recent years has not been incidental, or related to the increase of the incidence of poliomyelitis in general, but can be attributed to the presence of more virulent strains of poliomyelitis virus than in the past.

Effects of Cortisone and ACTH in Mumps Meningo-Encephalitis. J. K. Spitznagel. Ann. Int. Med. 49: 61-69 (July) 1958 [Lancaster, Pa.].

The author reports on 5 men, between the ages of 20 and 37 years, with mumps meningoencephalitis who were admitted to the communicable disease ward of the U. S. Army Hospital, Fort Bragg, N. C. The patients presented headache, drowsiness, and stiff neck; only 1 did not vomit. Nuchal rigidity and sialadenitis were observed in all. The patients were lethargic, and 3 were delirious. One patient had orchitis on admission. Temperatures ranged from 101 F (38.5 C) to 104 F (40 C). Pleocytosis was found in the cerebrospinal fluid of every patient; mononuclear cells were predominant in 4. Three patients had an elevated level of the protein content of the cerebrospinal fluid. In selecting these patients, an effort was made to obtain those with manifestations of central nervous system involvement of no more than 2 days' duration and with particularly severe symptoms and signs, including disturbances of the sensorium. Rises in complement-fixing antibody for mumps antigen in the serums were consistent with recent infection in 4 patients from whom acute-and-convalescent-phase serums were obtained. Diagnoses were confirmed by lumbar puncture. Four patients were given cortisone in doses of 200 to 300 mg. per day, and 1 patient was given corticotropin (ACTH) in doses of 60 mg. per day. In all patients but one administration of the drugs was discontinued by progressive decrements.

Cortisone and corticotropin appeared to produce rapid remission of headache, nausea, anorexia, vomiting, lethargy, delirium, and nuchal rigidity. Fever, although it fell rapidly, tended to return to previous levels for short periods of time, accompanied by minor recurrence of other symptoms. Orchitis developed in one patient during cortisone therapy. This patient, and one other, had additional salivary gland involvement during therapy. Abrupt withdrawal of the drug in one patient after the administration of 3 doses of cortisone resulted in a dramatic recurrence of previous symptoms. The duration of mumps in these patients was not shown to differ from that in patients not receiving cortisone or corticotropin. No evidence of residual disease of the nervous system could be detected in any of these patients. This study did not provide any basis for the explanation of any effects which cortisone or corticotropin may have had on the patients.

Deficiency Encephalopathies of Alcoholic Subjects. J. Lapresle. Semaine hôp. Paris 34:1629-1637 (June 4) 1958 (In French) [Paris].

The deficiency encephalopathies of alcoholic subjects appear in 3 principal forms: (1) Wernicke's disease, which associates in an acute course constant psychic disturbances of a confusional type with less constant neurological signs (disturbances of balance, extrapyramidal disturbances, and ocular signs); (2) Korsakoff's syndrome, with its characteristic disturbances of memory and its subacute or chronic course; and (3) Marchiafava-Bignami disease, with which Morel's cortical sclerosis may be grouped because of the similarity of their clinical signs, consisting essentially of dementia, and their rapidly fatal course. All 3 forms are characterized by glial and vascular changes and by neuronal lesions of the retrograde type, so that differences in the distribution of the lesions, rather than in the lesions themselves, govern the clinical type. The basic etiological element in these conditions is a deficiency of vitamin B_1. Correction of this deficiency by vitamin B_1 administration, if it is started in time, produces results that are always favorable and often dramatic. Vitamin B_1 therapy must therefore be tried even when the diagnosis is merely suspected. It is generally agreed that the doses should be large, from 500 to 1,000 mg. a day, and that they should be given by the intramuscular route, because serious complications have been reported after the intravenous injection of massive doses. The basic treatment with vitamin B_1 should be supplemented by administration of the other fractions of the B complex and by vitamins C and K, both because of the possibility of associated deficiencies in these substances and because of their own pharmacodynamic effect.

Treatment with alcohol, which is effective in delirium tremens, is contraindicated in these deficiency conditions, because it is of no value—quite the contrary. Sedatives, too, are generally useless in these patients who are for the most part calm and already confused. A balanced diet (not too rich in glucides), on the other hand, is essential, and provision must be made for rehydration and correction of electrolyte imbalance. Neuroplegic medicaments should be given as required for the neurovegetative syndrome. Corticotropin and cortisone seem, for reasons not yet understood, to have a favorable effect, particularly in the chronic forms, especially Korsakoff's syndrome. They should, of course, be given with all the usual precautions and under the protection of antibiotics, which is indispensable for these peculiarly fragile patients. The radical improvement made by vitamin B_1 therapy in the prognosis of these conditions, especially Wernicke's disease, which he regarded as invariably and rapidly fatal, emphasizes anew the importance of accurate early diagnosis.

Paramyotonia Congenita. G. A. Drager, J. F. Hammill, and G. M. Shy. A. M. A. Arch. Neurol. & Psychiat. 80:1-9 (July) 1958 [Chicago].

Paramyotonia is a relatively rare disorder, as only 2 pedigrees of the disease are to be found in the literature. The authors present an additional pedigree with 30 affected members. Features warranting delineation of Eulenberg's paramyotonia as a specific syndrome are presented. Six generations of a family of 115, with 30 members showing traits of paramyotonia congenita, have been investigated. Males and females are equally dispersed among the 30 affected members. Some members of every generation are affected, although, should any one member of a generation fail to exhibit the trait, it disappears from all of his or her succeeding offspring. The over-all genetic pattern indicates a single dominant autosomal strain with nearly complete penetrance and thus conforms favorably with the pedigrees of paramyotonic families described by Eulenberg. It further indicates that the least affected members of the family are more likely to give rise to unaffected offspring in contradistinction to the more severely affected members who characteristically give rise to affected offspring.

A review of the literature and the 4 cases presented would indicate that paramyotonia is a separate clinical entity consisting of the triad of myotonia, increasing in the presence of cold; intermittent flaccid paresis, not necessarily dependent upon cold or the presence of myotonia; and a hereditary pattern dependent upon a single autosomal dominant gene. Excessive lability of serum potassium appears to be constant in all cases, although no shift of intracellular potassium is indicated.

Fatal Mistakes in Diagnosis of Cerebral Apoplexy. J. Marquardsen. Ugesk. læger 120:663-670 (May 22) 1958 (In Danish) [Copenhagen].

Autopsy revealed an undiagnosed intracranial tumor in 6 of 291 patients who died in a neurological department under the diagnosis of cerebral apoplexy and a subdural hematoma. The errors in diagnosis were almost exclusively in patients aged over 65 years, in whom the usual signs of increased intracranial pressure were absent. In some of the patients timely operation would doubtless have been lifesaving; subdural hematomas are generally operable, but the unrecognized tumors were chiefly malignant gliomas. A purely clinical diagnosis of apoplexy should be supplemented by special diagnostic adjuvants. Cerebral angiography is the only procedure which can with reasonable certainty establish or exclude a tumor or subdural hematoma and at the same time establish a cerebrovascular accident. In the diagnosis of apoplexy arteriography should be applied to a far greater extent than has been done heretofore. When facilities for cerebral angiography are not at hand, attention should be focused on the manner of development of the symptoms. An expanding lesion should be suspected on insidious onset of symptoms, progressive development of focal signs, remarkably rapid mental deterioration preceding the focal symptoms and persisting torpidity or somnolence with only mild focal signs and good general condition. The diagnostic efforts should not be relaxed in the case of patients in whom in advance a vascular accident seems probable, and even an accumulation of factors predisposing to apoplexy, such as advanced age, arteriosclerosis, and hypertension, does not exclude the presence of a tumor or subdural hematoma. For an adequate diagnosis of apoplexy, intimate cooperation among medical, neurological, and neurosurgical departments is called for.

GYNECOLOGY & OBSTETRICS

Ovariectomy and Adrenalectomy in Metastasizing Mammary Cancer. J. Hellström. Nord. med. 59: 769-773 (June 5) 1958 (In Swedish) [Stockholm].

From January, 1953, to November, 1957, bilateral adrenalectomy was performed in the Karolinska Sjukhus on 214 patients with metastasizing cancer of the breast. Most of the patients had received roentgen-ray or hormonal treatment earlier. Surgical deaths occurred in 2.3% of the cases, postoperative deaths in hospital in 7.3%. Of the 166 patients operated on up to March 31, 1957, 150 were observed for at least 2 months after the operation; in 143 of these ovariectomy had also been done. Remission was seen in 76 patients, or 51%. Forty-two of the patients lived 1 year or longer. There was no certain difference between those operated on before or after the menopause. The patient's age apparently was not significant. The localization of the metastases was of greatest importance. The results were better in patients with metastases located in the skin, lymph nodes, pleura, and skeleton than in those with metastases in the viscera, especially the liver, and in the brain. In 23 cases ovariectomy had been considered unnecessary because of the patient's age, but comparison of the frequency of remission in the patients in whom ovariectomy was not carried out and in those with both ovariectomy and adrenalectomy showed definitely lower values where ovariectomy was not done, which seems to indicate that the ovaries play a part in the growth of the cancer even in older and roentgen-ray-castrated women. Bilateral ovariectomy and adrenalectomy in metastasizing mammary cancer are an intervention which can be performed with little primary mortality and resulting subjective improvement in more than 80% of the patients and objectively observed remission of the cancer development in more than 50%.

The Cytological Examination of Nipple Discharges as a Diagnostic Aid. J. C. Walker and A. T. Sandison. Scottish M. J. 3:297-304 (July) 1958 [Glasgow].

The authors present results obtained with cytological examination of the nipple discharge and subsequent operation on 25 patients, all of whom have been followed for at least 3 years. Included in this group were patients whose primary complaint was discharge from the nipple alone, as well as those patients whose discharge was secondary to a clinically evident lesion. Eighteen of the patients had no physical sign other than discharge from the nipple. The cytology of mammary secretion is not complicated by the presence of normally desquamated cells, as in examination of sputum or vaginal smears. Most of the cells are probably of ductal origin. Many discharges are relatively acellular, while in true inflammatory lesions there may be amorphous debris accompanied by leukocytes and sometimes red blood cells. The presence of red blood cells must always be regarded with suspicion, and in such smears a careful search must be made for clumps of or individual epithelial cells. If fixation is not good, there must be caution in estimating the nature of the parent lesion. In papilloma the cells are rounded or oval with large nuclei which are often deeply stained, while in intraduct carcinoma the cells and nuclei may vary in size and shape and be accompanied by naked nuclei or nuclear debris. In conditions where the pathological change does not involve the duct-acinus system, there can be no evidence of its presence in the discharge.

The ages of the patients examined ranged from 14 to 68 years. The lesions responsible for the discharge were in 1 patient intraduct papilloma, in 4 patients papillomatosis, in 11 mastopathy, in 4 carcinoma, in 3 infective mastitis, and in 2 fibroadenoma. In 14 patients cytological examination was of value; this was especially true where no information was obtained on ordinary clinical examination. The authors hope to encourage other surgeons to correlate histological and cytological examinations of the discharge. The need for biopsy may then become less frequent. Nothing can replace the accurate appraisal of clinical findings and judgment of the necessity for biopsy, but in many cases present diagnostic methods are insufficient, and the authors feel that the evidence produced by simple cytological study of nipple discharges is of value.

A Study of Epidemiologic Factors in Carcinoma of the Uterine Cervix. E. G. Jones, I. Macdonald and L. Breslow. Am. J. Obst. & Gynec. 76:1-10 (July) 1958 [St. Louis].

The authors present an epidemiologic study to determine the association of exogenous and endogenous factors in 429 patients with carcinoma of the uterine cervix. Only patients with invasive primary squamous-cell carcinoma were included in the study. Patients with preinvasive lesions as well as adenocarcinomas were excluded. Control patients (429) were selected from the same source as the patients without gynecologic disease or cancer of any site, with the same distribution of race and parity. To assure some degree of contrast in economic background, both "ward" and "private" patients were included. The study extended over a period of 4 years. The specific items of importance which have been under scrutiny are: dietary deficiency, estrogen excretion levels, menstrual patterns, hygienic practices, use of contraceptives, circumcision of marital and other partners, and frequency and duration of coitus. There were no significant differences between the cancer patients and the controls in total thiamine and riboflavin intake, in bathing habits, in sexual practice, in types and number of pregnancies, hygiene and coitus during pregnancy, manner of delivery, and bleeding or infection after pregnancy. Circumcision or lack of circumcision was as frequent in the partners of patients with cancer as in the partners of controls. A greater incidence of carcinoma in Gentiles over Jews as well as in women with syphilis, was again noted. Seven per cent of the cancer patients had clear-cut evidence of syphilis; only 4% of the control group had.

There is some evidence to show that a constellation of factors related to socioeconomic conditions and domestic and marital instability is more prominent in women who have carcinoma of the cervix than in comparable groups without this disease. The study, therefore, does not disclose any new specific causative factor for uterine cervical carcinoma. It does reemphasize the importance of the socioeconomic complex of relative poverty (at least in early life), with rapid maturation sexually and a haste to begin early, and early to terminate, the reproductive phase of biological destiny—marriage, intercourse, first and last pregnancies, separation, divorce. All these events occur significantly earlier in the life of the woman destined to develop carcinoma of the uterine cervix than in the woman without this disease in similar age distributions.

Constitutional Stigmas Associated with Endometrial Carcinoma. J. D. Garnet. Am. J. Obst. & Gynec. 76:11-19 (July) 1958 [St. Louis].

The high incidence of carcinoma of the endometrium in association with obesity, hypertension, altered carbohydrate metabolism, infertility, late occurrence of the menopause, hyperplasia of the endometrium, and irregular bleeding at the time of the menopause suggests a common metabolic disorder as an etiological factor. Glucose tolerance tests were performed on 50 randomly selected patients with proved endometrial carcinoma; they were both treated patients, as seen in the special tumor follow-up clinic, and new patients, as seen on admission to the hospital. For purposes of comparison, a control group of 50 women were given glucose tolerance tests. The patients in the control group were all 40 years of age or older; preexisting diabetes was unknown, and none had endometrial carcinoma. A third group of 12 women in whom an histological diagnosis of atypical or adenomatous hyperplasia of the endometrium had been made were also studied for glucose tolerance. The patients in all 3 groups were analyzed with regard to age, obesity, parity, hypertension, and age at the menopause.

One-third of the patients in the control group were classified as obese, while more than one-half of the patients of the group with endometrial carcinoma were obese. The incidence of obesity was found to be greater in patients with atypical endometrial hyperplasia. Only one-third of the control patients had blood pressures above 140 mm. Hg, systolic, and 90 mm. Hg, diastolic, while more than one-half of the patients with endometrial carcinoma had concomitant hypertension. The increased incidence of hypertension in patients with endometrial carcinoma is probably secondary to the obesity and lateral body build of these patients.

Nulliparity is almost twice as frequent in patients with endometrial carcinoma. The incidence of nulliparity in the patients with endometrial hyperplasia is only slightly higher than in the control group. The history of nulliparity and irregular bleeding during, or after, the menopause was a feature commonly noted in the patients with endometrial carcinoma. Such evidence of excessive estrogen stimulation, with resultant endometrial hyperplasia and polyp formation, is ascribed to prolonged and abnormal secretion of the follicle-stimulating hormone by the anterior pituitary gland. The occurrence of a high incidence of delayed menopause in patients with endometrial carcinoma was not noted in this study.

One-fifth of the patients in the control group demonstrated a diabetic type of glucose tolerance curve, the glucose tolerance curves in the remaining four-fifths being normal. Four of these cases can be classified as unquestionable diabetes, while the other 6 were of a questionable or mild type. In the group of 50 patients with proved endometrial carcinoma, approximately two-thirds had a diabetic type of glucose tolerance curve. One-half of these patients can be considered to have a severe degree of abnormal glucose tolerance and unquestionable diabetes. Of the 12 patients with adenomatous hyperplasia, two-thirds had a diabetic type of glucose tolerance curve. This is comparable to the group in whom unequivocal malignancy was present. A comparison of the control group and the group with endometrial carcinoma indicates that unquestionable diabetes is 3 times as common in patients with endometrial carcinoma as in those without this lesion. Evidence suggests that prolonged overactivity of the anterior pituitary gland may lead to these diverse constitutional manifestations in both groups of patients.

The Value of the Papanicolaou Smear in the Diagnosis of Carcinoma of the Uterine Cervix and of the Uterine Fundus. A. D. Anderson and G. G. King. Wisconsin M. J. 57:257-260 (July) 1958 [Madison].

The authors describe their experience with the Papanicolaou test in a small clinical practice, smears being taken from women seen in their offices. Since November, 1955, 1,043 Papanicolaou smears have been studied. Some of the late tests have been repetitious of earlier ones. The authors are of the opinion that the Papanicolaou smear test should be repeated at least once a year. Patients were instructed not to douche and not to use contraceptive jellies during the 2 days preceding the test. The aspirator present in all Papanicolaou kits was used first. It was inserted directly into the cervical os, and all free fluid and mucus was obtained. If insufficient material was present in the cervical os, the posterior cul-de-sac was also aspirated and smeared to make the first slide. The second slide was prepared by using half a tongue blade. The apex of the tongue blade was inserted into the cervical os; and, with the os as a pivot point, the tongue blade was scraped against the mucocutaneous junction of the cervix, hard enough in most cases to cause some bleeding. Immediately upon smearing, the slides were dropped into a bottle containing 95% alcohol.

Twenty-one malignant lesions of the cervix and 4 lesions of the fundus were diagnosed entirely by the Papanicolaou smear. One carcinoma of the fundus and 3 carcinomas of the cervix were diagnosed in the presence of negative Papanicolaou smears. These figures indicate an acuracy of approximately 86%. The Papanicolaou smear is a simple test and should be used routinely on all women. It is especially useful as a means of following patients who have received irradiation for cervical cancer, and it should be used during pregnancy. Patients with carcinoma of the cervix do not necessarily have symptoms or a visible lesion. Infections of the cervix and vagina with Trichomonas organisms should be treated vigorously and cleared up as quickly as possible. Early carcinoma of the cervix is a disease of young women and, when found at this early stage, can be treated surgically with an excellent chance of cure.

PEDIATRICS

The Determination of Genetic Sex in Children: A Critical Evaluation of the Reliability of Polymorphonuclear Leukocyte Morphology. K. H. Cooper and R. L. Cranny. A. M. A. J. Dis. Child. 96:40-42 (July) 1958 [Chicago].

An extranucleolar chromatin mass or "satellite" (also referred to as "drumstick") has been identified in the cells of the epidermis and in the polymorphonuclear leukocytes of human females. It serves as the basis for the determination of the genetic sex. The authors studied the morphology of the polymorphonuclear leukocytes of 65 patients of both sexes, ranging in age from 4 weeks to 75 years, in a blind fashion to evaluate critically this method of genetic sex determination. Five errors were made in the entire series, giving an over-all percentage of correct diagnosis of 92.3%. All the errors in diagnosis were made during the first half of the study. Three of the errors were believed to have been caused by poor technique in preparing slides, and, since later in the study no attempt was made to read poorly prepared films, it is probable that these 3 errors could have been avoided. The results of this study indicate that, under the proper circumstances, the morphology of the polymorphonuclear leukocyte is a reliable indicator of the genetic sex.

The Relationship of Little's Disease to Premature Birth. J. A. Churchill. A. M. A. J. Dis. Child. 96:32-39 (July) 1958 [Chicago].

"Little's disease" is the term applied to a morbid state established in infancy or prenatally and characterized by varying degrees of bilateral impairment in motility of the extremities and trunk. The Babinski sign and enhanced deep tendon reflexes differentiate this disorder from peripheral neuromuscular disorders and from purely dystonic and ataxic conditions. The term is generally used to denote those forms of cerebral palsy variously known as cerebral spastic paralysis, cerebral diplegia, congenital spastic paraplegia, spastic diplegia, and congenital quadriplegic spastic paralysis. The symptoms and signs of children afflicted with neurological disorders were correlated with gestational and parturitional factors known to be associated with high rates of infant mortality. The object of the study was to determine whether any one factor was more strongly associated with one type of neurological disorder than with another. This article deals particularly with the relationship of prematurity to different forms of cerebral palsy, mental deficiency, and epilepsy. There was a total of 562 patients, ranging in age from 2 to 20 years. All but a few came from homes in the region of Detroit and were from families with good standards of nutrition and health. Most of the data regarding physical findings and background history had been tabulated before the relationship of birth weigh to any particular set of neurological signs was suspected. The suspicion of a significant relationship between birth weight and Little's disease emerged from a preliminary inspection of the data.

The 562 cases were divided into 2 groups, depending on the presence or absence of the following findings: (1) bilateral Babinski sign; (2) hyperactive deep tendon reflexes; (3) increased (usually) or decreased muscular tonus; (4) reduced motility of extremities and trunk; and (5) onset of walking later than 14 months of age. The combination of these 5 manifestations, were referred to by the code symbol "D" (diplegia). Combinations of manifestations other than the 5 listed above were referred to by the code symbol "O" (other). There were assigned to the O group 483 patients, the birth weight being known in 454. There were 79 patients in the D group, the birth weight being known in 76. The mean birth weight of the 454 group O patients was 3,245 Gm. (7¼ lb.); that of the 76 group

D patients was 2,392 Gm. (5 lb.). The difference in birth weight between the 2 groups was highly significant. A study of the 76 patients coded as D, that is, those with diplegia or Little's disease, revealed that they could be divided into 2 groups, those with simple spastic diplegia, on the one hand, and those with complex diplegia, on the other. Patients with simple spastic diplegia exhibit symptoms and signs customarily interpreted in terms of damage to the corticospinal or pyramidal tracts, while those with complex diplegia exhibit, in addition, symptoms and signs usually interpreted in terms of dysfunction of other portions of the brain. Simple spastic diplegia has been found to correlate very significantly with low birth weight, to such an extent as to indicate a causal, though not necessarily a direct, relationship between prematurity and this disease. Complex diplegia, on the other hand, exhibits no significant correlation with low birth weight.

Long-Term Study of One Hundred Five Patients with Cystic Fibrosis: Studies Made Over a Five- to Fourteen-Year Period. H. Shwachman and L. L. Kulczycki. A. M. A. J. Dis. Child. 96:6-15 (July) 1958 [Chicago].

The survival beyond childhood of patients with cystic fibrosis is being noted with increasing frequency. The authors present observations on 105 patients observed over a period of 5 to 14 years after diagnosis. Duodenal intubation was performed in all the patients, and the fluid was examined for viscosity, trypsin, and pH in all the cases, for amylase and lipase values in the majority, and for chymotrypsin in a small number. In questionable cases, especially in those patients who were classified as having partial pancreatic insufficiency, intubations were repeated a number of times. The initial duodenal fluid sample showed complete absence of enzymes in 84 patients, whereas in 21 patients partial pancreatic insufficiency or normal enzyme activity was noted. In 5 of these latter patients progression to complete loss of pancreatic enzyme activity was subsequently noted. Beginning in July, 1954, the sweat test was performed, as devised by Shwachman, Dooley, and Higgins. Patients seen after August, 1956, were tested by the finger imprint method for chloride, and the test was strongly positive in each of 93 patients tested. The patients in this study were seen at regular 2-to-3-month intervals.

Prior to September, 1948, sulfonamides, penicillin, and streptomycin were the only therapeutic agents available. Penicillin and streptomycin were used primarily during acute exacerbations of pulmonary infections and were given intramuscularly or by aerosol. In a number of instances the sulfonamides were given "prophylactically" over prolonged periods. The beneficial effect of chlortetracycline (Aureomycin) was noted, and it has proved to be one of the most effective antibiotic agents in the treatment of cystic fibrosis. Oxytetracycline (Terramycin) was introduced in 1950 and has been equally effective. Chloramphenicol and erythromycin have been used liberally during the past 3 years, and novobiocin only sparingly during the past year. Neomycin administration by aerosol has been employed almost as frequently as penicillin and streptomycin aerosols during the last 2 years.

The patients were divided into 7 groups according to age at time of diagnosis. Ten patients had meconium ileus, and the cystic fibrosis of the pancreas was diagnosed within the first few days of life. In 21 patients diagnosis was made at less than 6 months of age; in 15, between 6 months and 1 year; in 18, between 1 and 2 years; in 32, between 2 and 8 years; and in 9, between 8 and 16 years. At the present time 41 patients are over 10 years of age. Ten of the 105 patients died during the period from July, 1956, to June 1, 1957, when this study was terminated. A system of clinical evaluation for cystic fibrosis is presented and is based on the following criteria: the general activity of the patient; the physical findings; the nutritional status; and the findings from the roentgenogram of the chest. Each of these 4 items is given equal weight in a scoring system in which 100 represents a perfect score. The present condition of the 95 patients in comparison with their original status is as follows: Forty-seven patients are now better, 27 are about the same, and 21 are worse. The authors emphasize the importance of a vigorous therapeutic program. It is hoped that the improved diagnostic tests now available will result in early diagnosis and prompt institution of effective therapeutic measures.

Primary Interstitial Myocarditis: Report of an Epidemic Outbreak. E. Freundlich, M. Berkowitz, A. Elkon and A. Wilder. A. M. A. J. Dis. Child. 96:43-50 (July) 1958 [Chicago].

Acute isolated interstitial myocarditis was first described by Fiedler in 1899. This type of interstitial myocarditis should be diagnosed only in the absence of any other pathological conditions that might be correlated with the myocardial involvement. The cause of this disease has never been clearly explained, and epidemic outbreaks have been reported only in recent years. This report is concerned with an outbreak of interstitial myocarditis in infants and children in the Haifa area, Israel. Between March, 1956, and December, 1957, 57 cases of interstitial myocarditis were observed, and 50 of the patients died. A few days before the onset of the acute heart failure a general malaise was noted, often accompanied by an upper respiratory tract infection. This prodromal stage usually lasted 1 to 3 days, but in several cases it could be traced back as far as 10 days and even more. Most of the patients had been examined at this stage, but except for a mild respiratory infection nothing abnormal was found.

The symptoms and signs of acute heart failure appeared suddenly. The child became restless and dyspneic and rejected food. Physical examination revealed marked pallor of the face and cyanosis of the lips. The breathing was labored, with a retraction of the costal arch. The extremities were cold and livid. The liver was enlarged and palpable 5 to 8 cm. below the costal margin. The heart sounds were usually weak. The pulse rate was always over 150 per minute, often up to 200. Moist rales were heard on auscultation of the lungs. The electrocardiographic and x-ray findings were typical of acute heart failure. In spite of treatment with digitalis, cortisone or prednisone, mercurial diuretics, antibiotics, oxygen, chlorpromazine (Largactil), and gamma globulin, no improvement was observed. The dyspnea was progressive, and the general condition deteriorated. The child became comatose and died usually in less than 24 hours after the first signs of the acute heart failure. The postmortem examination showed a dilated heart with interstitial infiltration with small lymphocyte-like cells.

Seven children in this series recovered and survived; 5 children recovered from the acute heart failure but developed another attack. Virological studies were performed in nearly half of the cases. In 1 single case a virus was grown on monkey-kidney-tissue culture from the heart muscle but not from other organs. The epidemiologic pattern, the geographical and chronological distribution of the cases, and the age incidence suggest an epidemic outbreak of primary interstitial myocarditis.

Acute Benign Pericarditis in Childhood. G. Bono and P. Garofalo. Minerva pediat. 10:366-376 (April 7) 1958 (In Italian) [Turin, Italy].

Acute benign pericarditis in childhood is a rare clinical entity; only 19 instances have been recorded in the literature. The authors report a boy, 8½ years of age, who was hospitalized because of a temperature of 38.3 C (100.9 F), precordial pain radiating toward the epigastrium and left shoulder, dyspnea, and considerable pericardial effusion. The condition was diagnosed as acute benign pericarditis, because there was no evidence of a rheumatic or a tuberculous infection or of a septicopyemic state. Treatment with digitalis was instituted, which promptly improved the cardiac function. Administration of large daily doses of penicillin for a period of 1 month and of sodium salicylate for 1½ months did not affect appreciably the course of the disease. Prednisone in a daily dosage of 1 mg. per kilogram of body weight was given for the first 2 days. The dosage was halved during the following 8 days. Prednisone brought about sudden relief of subjective symptoms (remission of fever, disappearance of precordial pain) but did not affect the objective symptoms and the pericardial effusion. The cardiac shadow returned to almost normal limits after 3 weeks. The electrocardiographic pattern, erythrocyte sedimentation rate, and white blood cell count revealed normalcy after a month. The boy was discharged on the 45th hospital day in complete remission, and that state has persisted for 10 months. The etiological nature of acute benign pericarditis is still obscure, being perhaps of viral origin. There is no specific method of treatment; recovery is spontaneous and invariable.

Colisepis as Cause of Icterus Gravis Neonatorum. J. H. W. Pielage and Liem Khe Hoo. Maandschr. kindergeneesk. 26:172-177 (May) 1958 (In Dutch) [Leiden, The Netherlands].

Jaundice in the newborn infant may have various causes, such as severe hemolysis, inadequate bile flow, or parenchymatous liver disease. On the basis of a case history the authors emphasize the importance of a correct diagnosis. A 17-day-old infant was hospitalized on account of severe jaundice. Physical examination showed an enlarged liver. Urinalysis demonstrated infection of the urinary tract. The combination of jaundice and pyuria was suggestive of neonatal septicemia. Cultures from blood and urine demonstrated Escherichia coli. Later the child developed an abscess on its back, also caused by Esch. coli. The cerebrospinal fluid obtained by lumbar puncture proved to be sterile but showed an increased number of cells and elevated protein level. The infant was treated with chloramphenicol combined with streptomycin and made an uneventful recovery. Intravenous pyelography showed a minor congenital malformation of the right pelvis. The diagnosis of septicemia must be suspected in every infant that is not "doing well."

Creeping Eruption, Larva Migrans: A Case of Ancylostomiasis Braziliensis. W. van Zeben. Maandschr. kindergeneesk. 26:160-161 (May) 1958 (In Dutch) [Leiden, The Netherlands].

The author presents the case of a 4-year-old boy who had been repatriated from Indonesia. Two months previously, while still in Indonesia, the child had played in a sandbox, and since then he had had an eruption on the buttocks, which caused severe itching, particularly at night. Eosinophilia did not exist, but examination revealed several red papules, and extending outward from these were several reddish streaks, representing infiltrated intracutaneous cuniculi. Scabies was thought of but could not be verified. The diagnosis of larva migrans was made after consultation with a colleague experienced in tropical medicine. Ancylostoma braziliense de Faria is an intestinal parasite in dogs, cats, and other small animals, and in Sumatra and Java it has been found also in human subjects. It is assumed that the sandbox in which the boy played may have been contaminated by feces of infected animals. Treatment consisted of freezing the lesion for 1 minute with ethyl chloride. This resulted in complete cure.

THERAPEUTICS

Clinical and Biological Investigations on the New Antituberculosis Drugs (Pyrazinamide and Cycloserine). A. O. Zorini, G. Spina and G. E. De Simoni. Dis. Chest. 34:27-46 (July) 1958 [Chicago].

The authors describe their experiences with pyrazinamide and cycloserine at the Carlo Forlanini Institute in Rome. Up to the time when this report was prepared (December, 1956), 100 patients had been treated with pyrazinamide, but only the 30 patients who had received a complete course of the treatment (4 to 6 months) are reviewed. In 11 of these the pulmonary tuberculosis was moderately advanced, and in 19 it was chronic. All these patients had been treated before with other antibiotics and chemotherapeutic agents. Patients who had evidence of hepatic dysfunction were not treated with pyrazinamide. The daily dosage of the drug (divided into 5 fractional doses) was 2.5 Gm. This dosage was usually reached by the 4th day of treatment. During treatment roentgenographic and planigraphic tests were carried out routinely, together with laboratory studies on serum electrophoresis, phagocytic index, protein-bound iodine value, adrenal cortical function, behavior of specific proteases of defense in urine, plasma lipasic power, serum cholesterol and bilirubin levels, plasma fibrinogen value, and prothrombin time, the colloidal serolability tests, and the charge tests of liver funtion.

Pyrazinamide showed a favorable action on tubercular lesions in a limited number of patients and for a short duration not exceeding 35 to 40 days of therapy, after which toxic phenomena, particularly hepatic disturbances, were observed. The laboratory tests showed abnormal values. The authors feel that pyrazinamide should be utilized in the therapy of pulmonary tuberculosis only after the employment of more effective and less toxic agents; furthermore, the treatment period should not be too long (a maximum of 40-50 days), with the possibility of reinstating the administration in the interval of therapeutic regimens executed with other antituberculosis drugs. The authors have not had sufficient experience with pyrazinamide in recent pulmonary tuberculosis, but they do not believe it worthwhile to substitute pyrazinamide for combined therapy with streptomycin and isoniazid. The latter remain the principal drugs used in the treatment of incipient active post-primary tuberculosis.

The authors used cycloserine for a period of 8 months in 88 patients. Sixty patients were treated with cycloserine alone (50 received a dose of 1 Gm. daily, and 10 received 1.5 Gm. daily); 26 patients received cycloserine (in daily doses of 0.5 Gm.) together with 0.3 or 0.4 Gm. of isoniazid; the remaining 2 patients received streptomycin and p-aminosalicylic acid, respectively, in addition to cycloserine. Cycloserine induced in two-thirds of the patients an appreciable clinical improvement and significant modifications of the roentgenographic picture, such as cavity closure and regression of exudative and miliary foci in 36% of the patients. In about 40% of the subjects whose sputum had been initially positive for tubercle bacilli, the sputum became negative on both direct smear and culture. Toxic effects of cycloserine on the central nervous system were not frequent and did not usually interfere with the continuance of therapy. The laboratory tests generally revealed normal values even after the second and the third month of therapy, showing a behavior contrary to that after pyrazinamide therapy.

Clinical Observations on the Use of Mecamylamine in the Treatment of Arterial Hypertension. P. Lucchelli. Gazz. med. ital. 117:174-182 (May) 1958 (In Italian) [Turin, Italy].

Mecamylamine was administered orally to 29 hospitalized patients with arterial hypertension, 17 of whom had essential hypertension and 10 the arteriosclerotic and 2 the renal type of the disease. A single dose, varying between 2.5 and 10 mg., reduced the mean systolic blood pressure from 197.12 to 161.62 mm. Hg; it reduced the mean diastolic blood pressure from 114.76 to 95.08 mm. Hg. The highest hypotensive response was recorded 3 or 4 hours after administration of the drug. Blood pressure values started to increase 6 or 7 hours after the administration of the drug. The most frequent complaints were vertigo, weakness, and digestive disturbances.

Twenty-three of the 29 patients continued to take the drug for longer periods, 16 as outpatients. Hospitalized patients received mecamylamine in a daily dosage of from 10 to 50 mg. for a period of 5 to 35 days. The maintenance dose was reached when the diastolic pressure was 105 mm. Hg or less. The mean value of the systolic blood pressure decreased from 203 to 184 mm. Hg, and the mean value of the diastolic blood pressure from 113 to 104 mm. Hg. Three patients did not respond to the ganglionic blocking effect of the drug. The daily dosage of the drug in the outpatient group varied from 10 to 45 mg. and was administered for a period of 2 to 112 days. Slightly better results were obtained in hospitalized patients than in the outpatient group. Two patients in the outpatient group did not respond to the drug. An appreciable decrease in blood pressure was observed in about one-half of the patients composing the combined hospitalized and outpatient groups. The most frequent complaints were stypsis, nausea, vomiting, xerostomia, and postural hypotension. These side-effects were slightly milder than similar ones observed during the use of other ganglionic blocking agents.

Treatment of Experimental Toxoplasmosis in the Mouse with Spiramycin. J. P. Garin and D. E. Eyles. Presse méd. 66:957-958 (May 28) 1958 (In French) [Paris].

Toxoplasmosis in man may on rare occasions appear in such an acute form (septicemia associated with multiple localizations) that, unless treatment is started promptly, the patient's life may be endangered. The rarity of severe toxoplasmosis in man, however, and the fact that most of the acquired forms of the disease are characterized by spontaneous regression make it impossible to evaluate the effectiveness of a medicament in man. The authors, therefore, induced the disease in white mice which are easily contaminated by a known number of micro-organisms of an established strain. A fixed dose of the medicament can easily be administered subcutaneously once a day or oftener for a determined period. Thus, the experimental method can be standardized; the results of various workers can be compared; and the anatomic and serologic cures can easily be checked. Among all the antibiotics tested, spiramycin seemed to stand out; it is produced from Streptomyces ambofaciens and is well tolerated by mice. Experiments were carried out by two groups headed by one author in Lyons, France, and by the other in Memphis, Tenn. Mice weighing 20 to 25 Gm. were inoculated by the intraperitoneal route with 20,000 Toxoplasma organisms of Sabin's RH strain. A 1% solution of spiramycin in distilled water was administered subcutaneously in 1 or 2 injections daily, beginning within 1 hour after inoculation. Daily doses of 8 mg. per mouse (i.e., 320 to 400 mg. per kilogram of body weight in man), producing blood concentrations of from 7 to 10 mcg. per milliliter of spiramycin in the course of the first 2 hours, were the most effective. These doses must be given for at least 2 weeks. Almost 80% of the mice inoculated with fatal doses of Toxoplasma organisms in both series were cured by this treatment. Spiramycin may thus be added to the list of drugs which are active against experimental toxoplasmosis in mice, such as the pyrimidine derivatives of sulfonamides, parent sulfone compounds, and pyrimethamine.

Adaptation of these experimental findings to human toxoplasmosis requires consideration of the following points: The doses usually given by mouth in man do not produce more than 3 or 4 mcg. per milliliter of spiramycin in the blood; moreover, as it is eliminated within 6 to 8 hours, the drug must be given in from 3 to 6 divided doses every 24 hours. The dose required in man is at least 100 mg. per kilogram of body weight. This dose is well tolerated for several consecutive days. The only side-effects are transient episodes of diarrhea. Doses of this magnitude are indicated in human toxoplasmosis, however mild the disease. The treatment must be continued for at least 3 weeks, because the optimum time for the formation of antibodies is 6 weeks. The results of this investigation show that spiramycin is effective against toxoplasmosis and can be used to advantage in the treatment of toxoplasmosis in man, either alone or in combination with one of the other drugs—sulfonamides, sulfones, or pyrimethamine.

Clinical Trials with DBI, a New Nonsulfonylurea Oral Hypoglycemic Agent. L. P. Krall and R. Camerini-Davalos. A. M. A. Arch. Int. Med. 102:25-31 (July) 1958 [Chicago].

The orally administered hypoglycemia-inducing agents used so far have been sulfonylurea derivatives with blood-sugar-lowering ability in certain types of diabetes. Within the last year studies were started with a new group of compounds classified as formamidinyliminoureas. These drugs are biguanides. This report is a clinical evaluation of the effectiveness of N^1-β-phenethyl-formamidinyliminourea hydrochloride, referred to as DBI. One hundred twenty-one diabetic patients were observed for periods varying from 1 day to 6 months. They were hospitalized, were kept on a constant weighed diet, and were observed individually by 3 physicians. Patients previously receiving insulin had DBI substituted for the insulin. Newly discovered diabetic patients were treated with DBI immediately after the diagnosis had been established. One-third of the patients experienced side-effects involving the gastrointestinal tract. Of 104 patients who were observed for an adequate period, 90 (or 86%) experienced a blood-sugar-lowering effect, although in 19 (18%) treatment was discontinued because of side-effects. Although the primary object of the study was lowering of the blood sugar, "good" or "fair" control was achieved in 66 of the 88 patients evaluated in this manner. Sixty patients are still on maintenance therapy with DBI. Only 6 of these take supplemental insulin, and these take less than 50% of their previous daily dose. Frequent liver-function, blood, and other studies have shown no evidence of toxicity. There was an observable blood-sugar-lowering effect in every age group tested and in every type of patient, including juvenile diabetics, in this series. The new drug, despite its annoying side-effects, may prove useful in the future if no toxic effects are found.

Transfusion Reactions from Contaminated Blood: Their Recognition and Treatment. A. I. Braude. New England J. Med. 258:1289-1293 (June 26) 1958 [Boston].

The saprophytic bacteria that inhabit the premises where blood is collected, stored, or transfused sometimes enter the bottles through carelessness and contaminate the blood itself. If large numbers of these contaminants are present in the transfused blood, they may lead to reactions, the violence of which depends on the properties of the contaminants. Three groups of these contaminants are considered. The first group consists of gram-positive saprophytes, such as diphtheroids. The other 2 groups consist of gram-negative bacteria, namely, cold growers, including members of the genus Pseudomonas or the genus Achromobacter, and coliform organisms. The 3 symptoms that dominate the reaction after transfusion of blood contaminated with gram-negative bacilli are fever, hypotension, and pain. These symptoms may appear after a latent period of 30 minutes or more and result from the transfusion of as little as 50 cc. of blood. Signs of renal failure become prominent after the first 24 hours, when there is a rapid development of azotemia with acidosis. In a bacterial transfusion reaction, intravascular hemolysis does not characteristically occur, and the diagnosis is established by the finding of many gram-negative bacilli in the smear of blood remaining in the bottle. In addition to the blood in the bottle, positive cultures may be obtained from the blood of the patient if the organism is a coliform bacillus possessing invasive qualities and capable of survival in vivo at the temperature of the human body. Isolation of vast numbers of bacteria from the recipient's blood may disclose the existence of an overwhelming bacteremia. Unlike the violent reactions from blood containing gram-negative organisms, the reactions that follow transfusion of blood overgrown by gram-positive bacteria may be harmless. A number of benign febrile reactions undoubtedly result from blood heavily contaminated by diphtheroids and other nonpathogenic, gram-positive bacteria.

The crucial point in treatment is prompt recognition of the syndrome and immediate administration of a tetracycline antibiotic in an initial dose of 1 Gm. and an additional dose of 2 Gm. during the first 24 hours. At the same time continuous intravenous administration of levarterenol must be instituted, which may be required long after the bacteremia is over. Not all tetracycline antibiotics are effective against all gram-negative bacilli; therefore, additional antibiotics that may be effective against gram-negative bacteria, such as chloramphenicol, neomycin, streptomycin, and penicillin, should be used. Two procedures can be depended upon for preventing transfusion of grossly contaminated blood: (1) microscopic examination by direct smear of blood just before the transfusion is started; (2) routine use of a tetracycline antibiotic in concentrations of 20 mg. per liter. This procedure prevents large sublethal inoculums of either cold growers or warm growers from multiplying in human blood at both refrigerator or room temperature. Such minute quantities of a tetracycline antibiotic would be harmless to the recipient.

Prednisone in Rheumatoid Arthritis: Metabolic and Clinical Effects. L. E. Ward, H. F. Polley, M. H. Power and others. Ann. Rheumat. Dis. 17:145-159 (June) 1958 [London].

At the time when the antirheumatic potency of cortisone was first emphasized, the belief was expressed that analogues superior to cortisone would be discovered. Since then, at least 7 more cortisone-like steroids have been found useful clinically; these include hydrocortisone, 9-alpha-fluorohydrocortisone (Fludrocortisone), prednisone, prednisolone, a compound whose structure is 9-alpha-fluoro, delta 1-hydrocortisone, triamcinolone, and 6-methyl, delta 1-hydrocortisone. Each of these 8 compounds has distinctive characteristics. The authors studied the antirheumatic and other clinical effects of prednisone and prednisolone on many patients with rheumatoid arthritis. In 3 such cases they made special studies concerning the metabolic effects of prednisone, and in 2 cases they compared these effects with those of cortisone or hydrocortisone. The metabolic balances of sodium, chloride, potassium, total nitrogen, calcium, and inorganic phosphorus were studied. Observations were made on electrolytes, urea, uric acid, proteins, sugar, and various lipids in the blood and on the urinary excretion of corticosteroids, 17-ketosteroids, uric acid, and creatinine. Studies also were made of the erythrocyte sedimentation rate, glucose tolerance, basal metabolic rate, and blood pressure, and electrocardiograms and electroencephalograms were taken.

It was found that prednisone (or prednisolone), when given to patients with rheumatic arthritis, produces effects similar to those produced by cortisone or hydrocortisone with respect to antirheumatic action, influences on the metabolism of nitrogen, carbohydrate, and fat, suppression of pituitary-adrenocortical function, and influences on blood cells and the basal metabolic rate. However, 2 important differences are noteworthy: 1. Prednisone is at least 4 or 5 times as potent as cortisone or hydrocortisone, milligram for milligram, both in antirheumatic effects and in most of the metabolic effects studied to date, except those relating to electrolytes. 2. Prednisone has relatively less effect on the metabolism of electrolytes and hence produces less retention of sodium, chloride, and water and less excretion of potassium, in comparison with cortisone or hydrocortisone in equivalent antirheumatic doses. The clinical use of prednisone or prednisolone must be attended by the precautions previously established for the optimal use of cortisone or hydrocortisone, namely, careful selection of patients, proper medical supervision during treatment, individual dosage schedules to provide optimal antirheumatic effects without hypercortisonism, special precautions at times of increased stress, and appropriate supportive and supplementary therapy.

Injection Abscess Due to Candida Albicans: Two Cases. K. R. Eriksen, J. L. Hansen and A. Stenderup. Ugesk. læger 120:643-644 (May 15) 1958 (In Danish) [Copenhagen].

Two cases of abscess at the site of the injection caused by Candida albicans occurred in patients who had received large doses of antibiotics for a long time; 1 of the patients had also had repeated cortisone treatment. The patients were in poor general condition. Complicating infection with C. albicans can be expected in such patients.

Hinconstarch in the Treatment of Pulmonary Tuberculosis. V. C. Barry, N. C. Browne, M. L. Conalty and others. Am. Rev. Tuberc. 77:952-967 (June) 1958 [New York].

A preliminary account of a pilot investigation of Hinconstarch (a polymer from periodate oxidized potato starch by condensation with equimolar proportions of isoniazid and *p*-aminobenzalthiosemicarbazone) described the results obtained in 12 patients with pulmonary tuberculosis treated for 3 months. The present report deals with the results obtained in 52 patients with pulmonary tuberculosis due to isoniazid-susceptible organisms and treated for periods of 3 to 12 months. Moderate or marked roentgenographic improvement was observed in 65% of the patients at 3 months and in 80% at 6 months, with increasing percentages at longer intervals. Closure of all cavities was achieved without surgery in 55% of the patients during the period of the trial. Disappearance of tubercle bacilli from the sputum occurred in 85% of the 52 patients. The findings in 10 patients who harbored tubercle bacilli resistant to 1 to 25 mcg. of isoniazid or more per milliliter at the start of treatment are also reviewed. In 2 of the 10 patients bacteriological "conversion" was observed. The authors conclude that a daily dosage of 40 to 45 mg. per kilogram is an effective dose of hinconstarch which does not cause toxic symptoms. Doses substantially larger than this may result in gastrointestinal or renal toxicity.

Studies with Streptovaricin in the Tuberculous Guinea Pig. K. F. Stern, J. E. Gray and L. E. Rhuland. Am. Rev. Tuberc. 77:976-982 (June) 1958 [New York].

Earlier studies had indicated that streptovaricin protects mice infected with Mycobacterium tuberculosis var. hominis (H37Rv) or M. tuberculosis var. bovis. The work reported here is an investigation of the efficacy of streptovaricin in guinea pigs. Tuberculin-negative guinea pigs weighing 400 to 500 Gm. were used. The animals were inoculated subcutaneously over the sternum with 0.5 ml. of a culture of M. tuberculosis (H37Rv) containing 4.5×10^5 viable units per milliliter. At 21 days post infection these animals were divided into 9 groups of 4 guinea pigs each. Five of these groups received 100, 50, 25, 12.5, and 6.25 mg. of streptovaricin. The sixth group received 5 mg. of isoniazid, the seventh group 15 mg. of streptomycin sulfate, the eighth group a lactose placebo, while the ninth group received no treatment. Treatment was continued daily for 62 days. At the termination of the study, surviving guinea pigs were killed, and pathological examinations were made.

The data obtained made it apparent that streptovaricin was efficaceous in the control of experimental tuberculosis. In the 50-mg. group of guinea pigs, no progressive tubercular lesions were observed in the lymph nodes which drained the site of inoculation or the lungs, spleen, and liver. In 1 guinea pig of the 100-mg. group, tubercular lesions regarded as progressive were present in some of the lymph nodes which drained the site of infection. The site of inoculation was free of cutaneous ulcerations in all guinea pigs of both groups. The 25-mg. dose of streptovaricin was regarded as subeffective inasmuch as progressive lesions were found at the site of inoculation, lungs, and spleen. However, the average index of infection was considerably lower than that in the placebo control, indicating some effect on the infection. The authors emphasize that a 50-mg. dose of streptovaricin had a therapeutic effect comparable to that of 5 mg. of isoniazid or 15 mg. of streptomycin.

PATHOLOGY

Bronchogenic Carcinoma in Young Persons. W. J. Hanbury. Brit. J. Cancer 12:202-206 (June) 1958 [London].

The author presents 2 instances of bronchogenic carcinoma in children and a third in a young man. The first patient, a 12-year-old girl, was the subject of a recent surgical resection, while the cases of the other 2 patients were found in the museum of St. Bartholomew's Hospital in London. In the 12-year-old girl, who had been subjected to a left-sided pneumonectomy, metastases subsequently developed in the liver, and death occurred 9¼

nously to 15 patients with liver disease and to 5 persons with normal liver; ferrous ions in a dose of 10 mg. were given intravenously to 9 patients with liver disease and to 3 persons with normal liver. Maximum concentration values of copper in the bile were observed between 60 and 90 minutes after injection in persons of the control group but between 1 and 72 hours in the patients with chronic liver disease. Maximum values were considerably lower in the patients than in persons of the control group. Decrease in the initial values was reached within 2 or 3 hours in the control group, but it took longer in the patients. The intravenous administration of the ferrous solution to persons in this series produced results analogous to those obtained by the administration of copper. After the intravenous administration of the copper solution, the concentration of iron in the liver bile decreased gradually in the control group but less constantly and more irregularly in the patients. An analogous response was obtained for the concentration of copper in the liver bile after the intravenous administration of the ferrous solution.

PUBLIC HEALTH

Studies on Myocardial Infarction in Malmö 1935-1954: II. Infarction Rate by Occupational Group. G. Biorck, G. Blomqvist and J. Sievers. Acta med. scandinav. 161:21-32 (No. 1) 1958 (In English) [Stockholm].

The infarction rate by occupation is a controversial question in the recent literature dealing with the epidemiology of coronary heart disease. Rathe, Master and Jaffe, Jacobs and Moll consider the socioeconomic status of the patients equivocal with regard to the development of myocardial infarction, while British authors point to an occupational difference in the incidence of coronary heart disease. Ryle and Russel have shown that in the upper (1st) social groups in the British social classification 3 times as many men die of "angina pectoris" as in the lowest (5th) social group. Stamler reports that unskilled laborers in the lower income brackets seem to have a higher mortality from coronary heart disease than other men of the same age. The present study of the hospital material of myocardial infarctions in Malmö subdivided the material into 3 occupational groups (employers, clerks, and workers) which are defined by the [illegible] which data on the composition [illegible] in Malmö can be con[illegible] have been further classified [illegible] or nonactive. [illegible] of occupationally active men [illegible] in the material numbered 654. These are distributed according to 5-year periods as follows: 1935-1939, 73; 1940-1944, 105; 1945-1949, 212; and 1950-1954, 264. The frequency of primary myocardial infarction in men of various occupational groups, expressed as the number of myocardial infarctions per 1,000 inhabitants in various age groups within the respective occupational groups, is approximately equal in the various male groups during the first 3 5-year periods. The figures from the last 5-year period show that the total rate (within the whole group above 30 years) is significantly higher for employers than for clerks and workers. The differences between the various occupational groups for women are not considered significant. The infarction rate was higher among married than among single, widowed, and divorced persons, and the wives of employers may have a relatively higher infarction rate than the wives of clerks, while the wives of workers have a lower rate.

The Mobile Unit X-ray Survey in Cardiovascular Disease Detection: A Report of 129,894 70 mm. X-rays, 3,477 Referrals. M. Feig, D. C. Cameron and A. Jensen. Wisconsin M. J. 57:261-265 (July) 1958 [Madison].

This report deals with the cardiovascular findings from 70-mm. chest x-ray films taken on 129,894 persons during 1955 by the Wisconsin State Board of Health mobile x-ray units. It is hoped that this report will demonstrate the effectiveness of Wisconsin's mobile x-ray program in heart disease detection to the practicing physicians and to the local health agencies. The survey did not include children under the age of 15 years unless exposure to tuberculosis was known to have occurred. Films taken in mental institutions, homes for the aged, and general hospitals also were deleted from this study. The board of health encouraged industrial groups to participate in the screening program, for tuberculosis has had a relatively high incidence in males over 45 years of age.

On the basis of the 129,894 films taken, 3,477 referrals were made, and 1,904 cases of heart disease were confirmed—a detection rate of 14.6 cases per 1,000 x-ray films taken. The authors emphasize that the 70-mm. chest x-ray is a useful and effective mechanism for heart disease screening. They suggest that the addition of a screening test for hypertension to the 70-mm. x-ray program should be of considerable value in bringing many persons to early medical care, thereby prolonging life and lessening disability. An additional benefit to be gained from this testing is that it will permit a more accurate and realistic estimation of the prevalence of cardiovascular disease in the general population than is presently afforded by a mere tabulation of death rates.

months after the operation and 10 months after the onset of symptoms. The other patients were youths, aged 16 and 22 years respectively. The younger patient died 1 month after the operation (7 months after the onset of symptoms) with signs of spreading infection. Sectioning of the right lung showed a whitish neoplasm, measuring approximately 6 by 7 by 8 cm., situated around the hilus and extending widely to involve the paratracheal lymph nodes, the pericardium, and part of the wall of the left atrium. Microscopic examination of the tumor showed a poorly differentiated bronchogenic carcinoma of predominantly oat-cell type.

In the 22-year-old man the neck veins were very prominent, and there were physical signs of collapse and consolidation of the right lung. Cutaneous nodules were present over the lower part of the sternum and in the lower lumbar region; a histological section of the latter was reported as showing a malignant tumor composed of columnar epithelium having an alveolar arrangement in places. A chest x-ray showed displacement of the heart and trachea, suggesting massive collapse of the right lung. Deep x-ray therapy was given, but the patient had increasingly severe attacks of dyspnea and died 17 days after admission (9½ months after the onset of symptoms). A review of the literature on bronchogenic carcinoma in patients below the age of 21 years revealed 60 instances.

Investigation in the Pathogenesis of the Pulmonary Hyaline Membrane. C. Zunin and E. Bertolotti. Minerva pediat. 10:479-484 (April 28) 1958 (In Italian) [Turin, Italy].

Pulmonary hyaline membrane is the only, or the most significant, pathological finding at autopsy of some newborn infants who die shortly after delivery. Autopsy, which was performed by the authors on 54 newborn infants, revealed the presence of pulmonary hyaline membrane in 18. Fourteen newborn infants were prematurely born, and 4 were born at term. The anatomicopathological picture was that of anoxia of the newborn. There are 2 etiological theories with regard to pulmonary hyaline membrane: the exogenous theory, according to which the membrane is derived from the amniotic fluid or its components; the endogenous theory, which attributes it to a protein exudate within the lung of the newborn infant. The authors made a histochemical investigation of the pulmonary hyaline membrane experimentally reproduced in guinea pigs and of that of newborn infants. Experiments were carried out in 4 groups of the animals. Amniotic fluid was given by the intrathecal route to 1 group; hyaluronidase was administered to 2 groups by inhalation and by the intrathecal route respectively; and a combination of amniotic fluid and hyaluronidase was given by the intrathecal route to the 4th group. Lepene-Pickwort and Millon stains were postive and similar in the newborn infants and in the group of guinea pigs which received the combination of amniotic fluid and hyaluronidase. No histochemical evidence of pulmonary hyaline membrane was present in the other 3 groups of guinea pigs. The authors conclude that a composite exogenous-endogenous theory of the etiology of pulmonary hyaline membrane seems to be the most probable.

Bronchial Adenoma (Carcinoid Type) with Solitary Metastasis and Associated Functioning Carcinoid Syndrome. W. R. Stanford, J. E. Davis, J. U. Gunter and S. G. Hobart Jr. South. M. J. 51:449-454 (April) 1958 [Birmingham, Ala.].

This report is the first of a case of bronchial adenoma of the carcinoid type which seemingly metastasized to the liver as a functioning carcinoid producing the hyperserotonin syndrome. The primary tumors of the functioning carcinoids reported up to now have been located in the small intestine. The patient was a 42-year-old woman who was admitted to the Watts Hospital, Durham, N. C., for the first time in May, 1944, for a pelvic operation. She was admitted again in 1945 because of pain in the left side of the chest and cardiac irregularity. She had had hypertension upon the first admission in 1944. In 1949 the systolic pressure ranged from 175 to 200 mm. Hg and the diastolic from 100 to 130 mm. Hg. At this time an x-ray film showed a density in the left suprahilar area which was thought to be a metastatic or primary lesion of the lung. The left lung was removed early in 1950 at another hospital (Duke University), and pathological examination revealed a bronchial adenoma of carcinoid type. The patient recovered with little respiratory distress. When she was hospitalized again on May 1, 1956, she complained of attacks of burning, flushing, and redness of the face, hands, forearms, and upper chest; throbbing in the ears; nausea; puffiness of the eyes; and nervousness. (She had had 1 or 2 similar attacks prior to admission.) The redness faded in about 24 hours, and she was discharged. On June 9, 1956, the patient was readmitted in acute distress in a severe similar attack. Gastrointestinal symptoms were more marked in this attack, with nausea, vomiting and diarrhea. The possibility of pheochromocytoma was considered.

One of the authors suggested hyperserotonin episodes from a carcinoid tumor. Other consultants agreed with the diagnosis of carcinoid tumor with hypersensitivity to serotonin. On Aug. 17, 1956, the urine test for serotonin metabolite 5-HIAA was positive. Flushing episodes now occurred at the rate of 1 to 4 per week. During an exploratory laparotomy in September, 1956, a tumor was removed from the subhepatic area. A tongue-shaped portion of liver was attached on 1 side. The thin fibrous capsule enclosing the tumor contained compressed liver cells, demonstrating that the tumor was actually located within the liver. Histologically this liver tumor was almost identical with the bronchial adenoma of carcinoid type removed from this patient in 1950. The liver tumor formed serotonin. No primary carcinoid tumor was found in the gastrointestinal tract of this patient, except the growth in the liver. At the time when this report was written the patient felt better than she had in years, and she has been completely relieved of symptoms due to hyperserotonin production.

Pathogenesis of Cancer of the Lung. G. L. Feofilov. Khirurgiya 34:66-71 (No. 3) 1958 (In Russian) [Moscow].

The author reports a histological study of 20 lungs removed for cancer. The affected and the adjacent lobes were studied. In 9 cases the cancer developed on the basis of chronic inflammatory changes, while in 2 cases a primary form of cancer was diagnosed. Chronic inflammatory changes of the bronchial walls were revealed by biopsy during bronchoscopic examinations. Inflammatory changes of the lungs were found in case histories of 78 patients with cancer of the lung. The author concludes that chronic inflammatory disease of the lungs constitutes a predisposing factor to the development of cancer.

ANESTHESIA

Elective Cardiac Arrest Under Moderate Hypothermia. A. Riberi and H. B. Shumaker Jr. Ann. Surg. 148:21-31 (July) 1958 [Philadelphia].

Mongrel dogs were utilized to induce cardiac arrest in the moderately hypothermic animal. In a preliminary investigation a series of dogs were subjected to 10-and-15 minute periods of vena caval occlusion. All the 10 animals subjected to a 10-minute vena caval occlusion survived and when killed 11 to 37 days later showed no evidence of brain or spinal cord damage. Ventricular fibrillation did not occur, and the only difference noted between those animals and the 5 which underwent procaine blockade was the quicker return of normal pupillary size and the prompter general recovery in the procaine block animals. An additional 10 animals subjected to a 15-minute vena caval occlusion recovered and when killed 9 to 15 days later exhibited no brain or spinal cord damage, save for lethargy on the first postoperative day. There was a single instance of ventricular fibrillation in 1 of the second group of animals which underwent procaine blockade.

The use of sodium citrate for the induction of cardiac arrest was investigated. Electrical arrest occurred promptly in 11 of the 23 animals in which rapid clinical standstill was achieved. In 8 dogs electrical arrest occurred several minutes after clinical arrest, and in the remaining 4 animals complete arrest according to electrocardiographic tracings was never attained. In all instances a good sinus rhythm was restored, although 2 animals died of hemothorax after surgery. The use of potassium lactate was studied in 36 dogs. At the end of vena caval occlusion heparinized oxygenated blood was perfused into the proximal part of the aorta and coronaries, and upon the myocardium becoming pink the coronaries were perfused with 10% calcium gluconate, 1 cc. per kilogram, after which the perfusion with oxygenated blood was continued. In all instances save one, restoration of vigorous cardiac activity ensued within 1 or 2 minutes. The one instance of ventricular fibrillation that did occur in this group was abolished, and the sinus rhythm was established immediately upon restoration of coronary perfusion. The latter method is the more effective in bringing about clinical and electrical arrest, and the restoration of vigorous heart function is readily accomplished.

Rewarming Following Hypothermia of Two to Twelve Hours: II. Some Metabolic Effects. B. Fisher, E. J. Fedor and S. H. Lee. Ann. Surg. 148:32-43 (July) 1958 [Philadelphia].

Of the 31 animals used in this study, all the 2-hour, 4-hour, and 8-hour cooled dogs survived after rewarming, while 5 of the 9 which had been hypothermic for 12 hours died within the first 24 hours upon attaining the normothermic state. The hematocrit of animals cooled 2 and 4 hours showed a 16% mean increase; there was a 20% mean increase after 8 hours of hypothermia and a 24% increase after 12 hours. After rewarming there was a prompt return to the control hematocrit in 5 of the animals cooled 2 hours. After 12 hours of cooling at 29 C (84.2 F) plus 5 hours all the hematocrits had not returned to precooling levels, the readings remaining high especially in those animals that failed to survive. In all groups an increased glucose content of the blood was noted prior to rewarming. No significant difference in plasma specific gravity before rewarming from the precooling values was observed. Whole blood specific gravity increased significantly upon cooling in all but the 2-hour cooled animals in which it remained unchanged. Although the exact mechanism is still in doubt, the increased hematocrits have been ascribed to either capillary leakage or differential plasma trapping with a concomitant decrease in the circulating blood volume. After cooling no significant change in blood lactates occurred even after up to 8 hours of hypothermia. Animals in all groups demonstrated a significant decrease in blood pyruvates, thus effectively increasing the lactate/pyruvate ratio to twice the upper normal limits. Blood amino acids were unchanged by cooling and rewarming. No significant alterations of serum sodium, potassium, calcium, chloride, or phosphorous values were reported. From these findings there is nothing to suggest that hypothermia or rewarming after hypothermia of approximately 6 hours' duration is attendant with changes that would preclude seriously considering abandoning this modality for clinical use, provided that the dangers of fibrillation could be eliminated.

PHYSIOLOGY

Discussion of Certain Works Relating to the Physiopathology of Traumatic Shock. H. Laborit. Presse méd. 66:977-979 (May 31) 1958 (In French) [Paris].

Recent investigations into the mechanism of shock tend more and more to show that the dominant element in the causation of this syndrome is the stable vasomotor reaction (vasoconstriction) of the splanchnic region. This reaction is protective in its immediate effect, but it leads to grave disorders when unduly prolonged. Hepatic circulation diminishes at the start of aggression, and the utilization of oxygen by the liver is greatly reduced. The liver becomes anoxic and liberates ferritin, or vasodepressor material, and this, in turn, is the cause of the circulatory decompensation and vascular atony found in decompensated shock. Ferritin can thus be regarded as a link between the peripheral vasomotor reaction now generally accepted as responsible for shock, the hepatic anoxia to which it leads, and the arteriolar atony which is its consequence. Inhibition of the vasomotor reaction is beneficial, because it maintains normal hepatic circulation and so prevents the liberation of ferritin. It has been amply shown that experimental animals can be protected against various types of shock by pharmacological substances capable of inhibiting the autonomic system and preventing peripheral vasomotor reactions. Attempts to maintain the arterial pressure by perfusions of arterenol in an animal in shock, however, eventually fail, because the doses must be continually increased until at last the animal becomes insensitive to the drug and dies. Tests have shown that small vessels fail to react to epinephrine applied locally when the liquid under study contains ferritin. Special interest, therefore, attaches to the discovery of GD 131 [N-(2-chlorethyl) N-(cyclohexylmethyl)-ethylamine hydrochloride], which is nontoxic and has no adrenergic blocking action but which does exert a protective effect by inhibiting ferritin. This fact, if confirmed, would be important because it would seem to show that, without altering hepatic anoxia of circulatory origin, the cellular metabolism can be influenced directly so as to nullify one or more of the causes of generalized circulatory atony, one of which is apparently the activation of ferritin. This means that, without suppressing the vasomotor reaction to aggression and the localized hypoxia which is its direct result, it would be possible to suppress the generalized atony which is its indirect result.

Some of the details connected with the theories according to which ferritin plays a predominant part in the development of shock are still obscure. One of the points that require clarification is the difference between the pharmacologically induced absence of vasomotor reactivity, which has an undeniably prophylactic effect in shock, and the absence of vasomotor reactivity that characterizes decompensated shock. Why is one of these states protective, while the other is harmful? The author's explanation is that, despite their functionally similar aspect, the two states are actually different: the first, which is favorable, is a state of relaxation or rest of the smooth muscle cells of the vessels which prevents anoxia, whereas the second is a state in which these same contractile muscle cells are exhausted as a direct result of anoxia. The failure of epinephrine to affect the small vessels, which is characteristic of decompensated shock, could then be explained by a metabolic and functional disturbance of the smooth muscle cells of the vessels, as well as by the possible oxidation of epinephrine. Recent experiments carried out by the author in relation to exhaustion of the hypertensive effects of arterenol confirm this belief.

Biliary Excretion of Copper and Iron Before and After Intravenous Administration of the 2 Metals in Patients with Chronic Liver Disease. A. M. Bertolini, N. Massari and C. Guardamagna. Policlinico (sez. prat.) 65:283-297 (Feb. 24) 1958 (In Italian) [Rome].

The authors studied the biliary excretion of copper and of iron in 32 persons, 24 of whom had a chronic liver disease and 8 of whom constituted the control group. An impaired liver function was associated with a decreased concentration of copper and iron in liver bile only in the advanced stage of the disease. The authors thought that by injecting an isotonic solution of the 2 metals into the circulation the excretory malfunction of the liver could also be revealed in the initial stage of the disease when it is most needed. Consequently, cupric ions in a dose of 12 mg. were given intravenously to 15 patients with liver disease and to 5 persons with normal liver; ferrous ions in a dose of 10 mg. were given intravenously to 9 patients with liver disease and to 3 persons with normal liver. Maximum concentration values of copper in the bile were observed between 60 and 90 minutes after injection in persons of the control group but between 1 and 72 hours in the patients with chronic liver disease. Maximum values were considerably lower in the patients than in persons of the control group. Decrease in the initial values was reached within 2 or 3 hours in the control group, but it took longer in the patients. The intravenous administration of the ferrous solution to persons in this series produced results analogous to those obtained by the administration of copper. After the intravenous administration of the copper solution, the concentration of iron in the liver bile decreased gradually in the control group but less constantly and more irregularly in the patients. An analogous response was obtained for the concentration of copper in the liver bile after the intravenous administration of the ferrous solution.

PUBLIC HEALTH

Studies on Myocardial Infarction in Malmö 1935-1954: II. Infarction Rate by Occupational Group. G. Biorck, G. Blomqvist and J. Sievers. Acta med. scandinav. 161:21-32 (No. 1) 1958 (In English) [Stockholm].

The infarction rate by occupation is a controversial question in the recent literature dealing with the epidemiology of coronary heart disease. Rathe, Master and Jaffe, Jacobs and Moll consider the socioeconomic status of the patients equivocal with regard to the development of myocardial infarction, while British authors point to an occupational difference in the incidence of coronary heart disease. Ryle and Russel have shown that in the upper (1st) social groups in the British social classification 3 times as many men die of "angina pectoris" as in the lowest (5th) social group. Stamler reports that unskilled laborers in the lower income brackets seem to have a higher mortality from coronary heart disease than other men of the same age. The present study of the hospital material of myocardial infarctions in Malmö subdivided the material into 3 occupational groups (employers, clerks, and workers) which are defined by the official statistics and for which data on the composition of the population in Malmö can be constructed. These patients have been further classified as occupationally active or nonactive.

The total number of occupationally active men with primary infarction in the material numbered 654. These are distributed according to 5-year periods as follows: 1935-1939, 73; 1940-1944, 105; 1945-1949, 212; and 1950-1954, 264. The frequency of primary myocardial infarction in men of various occupational groups, expressed as the number of myocardial infarctions per 1,000 inhabitants in various age groups within the respective occupational groups, is approximately equal in the various male groups during the first 3 5-year periods. The figures from the last 5-year period show that the total rate (within the whole group above 30 years) is significantly higher for employers than for clerks and workers. The differences between the various occupational groups for women are not considered significant. The infarction rate was higher among married than among single, widowed, and divorced persons, and the wives of employers may have a relatively higher infarction rate than the wives of clerks, while the wives of workers have a lower rate.

The Mobile Unit X-ray Survey in Cardiovascular Disease Detection: A Report of 129,894 70 mm. X-rays, 3,477 Referrals. M. Feig, D. C. Cameron and A. Jensen. Wisconsin M. J. 57:261-265 (July) 1958 [Madison].

This report deals with the cardiovascular findings from 70-mm. chest x-ray films taken on 129,894 persons during 1955 by the Wisconsin State Board of Health mobile x-ray units. It is hoped that this report will demonstrate the effectiveness of Wisconsin's mobile x-ray program in heart disease detection to the practicing physicians and to the local health agencies. The survey did not include children under the age of 15 years unless exposure to tuberculosis was known to have occurred. Films taken in mental institutions, homes for the aged, and general hospitals also were deleted from this study. The board of health encouraged industrial groups to participate in the screening program, for tuberculosis has had a relatively high incidence in males over 45 years of age.

On the basis of the 129,894 films taken, 3,477 referrals were made, and 1,904 cases of heart disease were confirmed—a detection rate of 14.6 cases per 1,000 x-ray films taken. The authors emphasize that the 70-mm. chest x-ray is a useful and effective mechanism for heart disease screening. They suggest that the addition of a screening test for hypertension to the 70-mm. x-ray program should be of considerable value in bringing many persons to early medical care, thereby prolonging life and lessening disability. An additional benefit to be gained from this testing is that it will permit a more accurate and realistic estimation of the prevalence of cardiovascular disease in the general population than is presently afforded by a mere tabulation of death rates.

QUESTIONS AND ANSWERS

BOOSTER DOSE OF TETANUS TOXOID

To the Editor:—*If one is injured a "short while" after completion of a series of tetanus toxoid inoculations or the receiving of his latest routine booster dose, is it necessary to give him another booster dose at the time of injury? What would the situation be one month, three months, six months, and one year after the last infection?*

Gerard Marder, M.D., Gastonia, N. C.

Answer.—Under the conditions delineated, a booster injection would not be mandatory even after a year, and possibly after several years. Certain pertinent principles are worthy of restatement (Spaeth, *Nebraska M. J.* 41:224, 1956): When measurable immunity diminishes or is lost completely, it can be restored by means of a small booster injection. Apparently there is no time limit on this recall capacity of the body. The available literature indicates that response to the booster dose can occur 10 or more years after the basic immunization. This recall response is rapid, appearing in about five days. It is higher, faster, and more prolonged than that noted with the basic injections. Although the booster dose can be small, it cannot be infinitesimal. For this reason, infection with the bacillus of tetanus does not elicit an adequate booster response; the amount of antigen is insufficient. Toxoid contains much more antigen in a nontoxic form. Likewise, although increasing amounts of tetanus toxoid elicit correspondingly greater responses, there seems to be no increase after 0.1 ml. is reached. Soluble forms of tetanus toxoid for the booster injection apparently give better responses than do depot toxoids. Nevertheless, depot toxoids can act as efficient booster stimuli. Individuals differ in their capacity to produce and retain antibodies in response to tetanus toxoid. Hence, statistical considerations cannot govern the individual case. Excluding booster injections during epidemics of poliomyelitis or during other acute illnesses, the contraindications to the small booster injections needed, i. e., 0.1 ml., are largely theoretical. Consequently, despite recommendations for booster doses every three years, it would seem safe and reasonable to maintain a perennial state of immunity by administering 0.1 ml., or even 0.05 ml. (with a tuberculin syringe), every two years or even once every year. Individualization must govern such a program. Although a very small number of individuals are "poor responders," with failure to produce antibodies protective against tetanus, toxoids of improved potency tend to reduce this number to an insignificant level.

RECURRENT CHRONIC FURUNCULOSIS

To the Editor:—*A patient, aged 54, has had repeated bouts of boils for the past three months which are resistant to any type of antibiotic or chemotherapy. This man has been studied for diabetes and other diseases which might make him more susceptible to infections, but he appears to have none of these. Culture of the organism shows it to be Staphylococcus pyogenes var. albus susceptible to nitrofurantoin as a first choice of medicament. What is the current status of autogenous vaccine in treatment of these resistant organisms? Would gamma globulin be of any value in such a case?* *M.D., Nebraska.*

Answer.—The treatment of recurrent chronic furunculosis is difficult. It is assumed from the question that these infections are not limited to any particular area of the body, such as the face, chest and back (acne), axillae and groins (hidradenitis suppurativa), or scalp (dissecting cellulitis), since these constitute special etiological and therapeutic problems. Often the new boils are produced by autoinoculation of pus through the hands or clothing. Therefore, sterilization of the surrounding skin is important. This can be accomplished best by the use of a rubbing alcohol sponge bath three times a day. There is no unanimity of opinion as to the value of autogenous vaccines. Most authorities feel that they are not of great value. Furthermore, it is doubtful if they are worth the expense of isolating the organism and preparing a special vaccine, since commercial stock agents, such as staphylococcus toxoid, seem to be as effective as the custom-made vaccines. It must be admitted, however, that most practitioners employ vaccines in such cases. At the 1958 Annual Meeting of the American Medical Association, Morginson reported that gamma globulin clinically repressed 94% of staphylococcic dermatoses but that relapses occurred in 83% within two to four months. Therefore, it is doubtful whether the use of this expensive medication would be indicated in a recurrent infection. Despite the gloomy picture painted by this answer, spontaneous recovery is to be expected

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

in such cases. This, of course, complicates the problem of evaluating therapeutic agents for recurrent furunculosis.

DESENSITIZATION

To the Editor:—*Please give information on the most up-to-date method of desensitization against horse serum. Administration of tetanus antitoxin in large doses, with an intradermal test done first, is being proposed. The manufacturers of the antitoxin give a method of desensitization based on an article by Mackenzie and Hanger (J. A. M. A. 94:260-265 [Jan. 25] 1930). Have there been any changes at this time in the recommendations on desensitization?*

M. A. Perlstein, M.D., Chicago.

Answer.—No perfect method of desensitization has been discovered. In the event that serious reactions are anticipated, one should consider the use of bovine antitoxin, after precautions have been taken to rule out allergy to this material. A comprehensive review of the prophylaxis of acute serum reactions is contained in an article by Spaeth (*Nebraska M. J.* 41:224, 1956).

RECURRENT NIGHT SWEATS

To the Editor:—*A patient, 41 years of age, complains of night sweats which start at 3:30 a. m. and last for about three and one-half hours. This has occurred regularly for the last eight months. On a few occasions when he has not had excessive perspiration, he has had a dull headache on the left side of his head. He states these headaches are very severe. In 1952, he had a similar occurrence which lasted only about three months. A complete physical examination shows this man to be in good health. Findings on chest x-rays were negative, as were those on an upper gastrointestinal series, taken because of burning and some distress in epigastrium. Blood cell count, urinalysis, and all other laboratory studies revealed normal findings. The thyroid gland appears to be normal, and his weight has remained constant. He feels well, except when he is having excessive perspiration, at which time he also has chills. His temperature taken during the night before and immediately after the attacks of excessive perspiration is normal. What is the possible diagnosis, and what treatment might be given?* *M.D., Michigan.*

Answer.—Excessively copious night sweats usually occur because of some infection which produces an intermittent fever, the fever and the sweats being associated. Tuberculosis is the classic culprit, and, despite the normal result of the examination so far, it would be well to do a tuberculin test. Other chronic infections should be sought. Occasionally, convalescence from a severe illness with prostration and debility leaves the person liable to excessive sweats not only at night but in the daytime. This is common after viral infections but rarely lasts more than a few days or weeks. An occasional patient with much anxiety may have attacks at night characterized by sweating and shivery feelings; these are usually without frank chills, often with tachycardia, and sometimes with palpitation or dyspnea. The sweating of thyrotoxicosis has no preponderant nocturnal emphasis. If thyroid disease can be excluded, it might be well to check into the seasonal occurrance of these attacks and find out whether the man uses too many blankets at night, sleeps in an overheated room, or has any findings suggestive of a neurosis.

ARTHRITIS OF THE SPINE

To the Editor:—*A patient, aged 52, has a mixed form of arthritis of the spine which could be described as rheumatoid arthritis (Bechterew's disease). It seems to show the typical changes in the cervical and dorsal region. There is definite osteoporosis of the entire spine and a loss of the sacroiliac joint space with fusion. This patient has some calcification of the ligaments in the lower spine. His brother also has this disease in its typical form. Is x-ray therapy considered beneficial when this condition has been present for a while? Is there any other treatment superior? What would be the treatment of choice? The patient's blood calcium level is 8.7 mg.%.*

M.D., Alabama.

Answer.—The collagen and arthritic diseases, of course, are not easily separated into definite diagnostic categories. A patient who has a generalized ankylosing arthritic process in his spine and sacroiliac joints goes through some acute phases when the process is painful. During these periods, x-ray therapy is beneficial to relieve some of the pain. No other treatment is of great benefit. However, conservative treatment to maintain the right posture of the spine, with a hard bed, physiotherapy, and a Taylor type of brace, are important.

PAIN IN THE TONGUE

To the Editor:—*A 59-year-old woman with multiple sclerosis complains of periodic bouts of neuralgic, knife-like pain in the right side of her tongue. Examination of the tongue, teeth, pharynx, larynx, and neck are unrevealing. She has taken various medicaments without appreciable relief. Please give suggestions for further therapy.*

Edward T. Carey, M.D., Clinton, Iowa.

Answer.—Knife-like pain in the tongue in multiple sclerosis is very unusual. Textbooks contain no discussion of this phenomenon, nor do the experts seem to have had any experience with it. Pain on the right side of the face is not unusual, but, limited to the tongue, it is exceptional. The only suggestion would be to attempt procaine alcohol block for the branch of the fifth (facial) nerve, which supplies the innervation to the tongue. Topical applications would be useless.

ELEVATED SERUM CHOLESTEROL LEVEL

To the Editor:—*A patient in his early 60's, who had on yearly examinations an only slightly elevated serum cholesterol level (240-270 mg.%) on an unrestricted, average diet, suffered a myocardial infarction about three months ago. He is now on a fat-restricted diet and receives papaverine hydrochloride, bishydroxycoumarin, and a combination of unsaturated fatty acids with vitamins* B_6 *and E. In spite of this, the serum cholesterol level stays considerably elevated; even when measured on different days, times, and hours it varies between 330 and 350 mg.%. Is there any possibility that the papaverine or bishydroxycoumarin may tend to raise or keep the serum cholesterol level high?*

W. Scheffler, M.D., Merchantville, N. Y.

Answer.—None of the drugs or other therapeutic measures mentioned should influence blood lipids except for the unsaturated fatty acids, whose influence, as reported in recent literature, has been to lower cholesterol levels in a high percentage of individuals with hyperlipemia. This patient should have adequate investigation to eliminate the possibility of myxedema or nephrotic syndrome with coincident hyperlipemia. If these can be eliminated, it would seem justified to discontinue medication other than the low fat diet and anticoagulant therapy and observe the effect on the serum cholesterol level.

UTILIZATION OF CALCIUM

To the Editor:—*Is the calcium in powdered milk as well utilized by the human body as the calcium in whole fresh milk? What is the relationship of calcium intake to the formation of teeth and to the prevention of caries?*

M.D., New York.

Answer.—From the nutritional standpoint, the calcium of powdered milk is as well utilized by the body as is that from fluid whole milk. It is present in the same form. The extent of the utilization of calcium will, of course, depend on other dietary factors, such as the amount of phosphorus, vitamin D, and the chemical forms of these elements in the diet. Phosphorus in the form of phytic acid, of course, interferes with the absorption of calcium. The calcification of the teeth is influenced by a number of factors. It is well known that vitamin D is essential to normal calcification. The parathyroid glands play a part in regulating the concentration of calcium ions in the blood plasma. According to the Council on Dental Therapeutics of the American Dental Association, "The available evidence indicates that if the calcium intake is adequate for general health, addition of calcium compounds to the diet does not serve to prevent dental diseases including caries or to medicate their effects." It should be remembered that enamel and dentine are practically completely calcified in an early age in life and experience only limited and varied calcification and replacement during the life of an individual. This proceeds at an extremely slow rate.

HERPETIC LESION AND MENSTRUATION

To the Editor:—*A question appeared in* The Journal *for June 14, 1958, page 925, regarding a patient who had herpetic lesions of the mouth prior to the menstrual period. A report of a similar case was published by Berger* (Ann. Int. Med. *42:205, 1955), and he established quite convincingly that his patient's ulcerative stomatitis was caused by endogenous progesterone, as suggested in the answer to the above question. Berger's patient was rendered free of symptoms by suppression of menstruation, and desensitization to progesterone was carried out by injection at weekly intervals. After resumption of menstruation, the patient remained free of symptoms for a year and remained so at the time of publication of Berger's report.*

Theodore W. Houk, M.D.
337 Stimson Bldg.
Seattle 1, Wash.

CHOLESTEROL VALUES DURING PREGNANCY

To the Editor:—*This comment is made in reference to the question and answer on cholesterol values during pregnancy, which appeared in* The Journal *for July 19, 1958, page 1572. A recent study, performed by myself and associates* (Am. J. Obst. & Gynec., *to be published), on women during normal pregnancy revealed a steady rise in mean total cholesterol levels from 173 mg. per 100 cc. during the first trimester to 350 mg. per 100 cc. at the time of labor. Just prior to delivery, 51 of the 69 women tested had a total cholesterol level exceeding 300 mg. per 100 cc. and 17 had values in excess of 400 mg. per 100 cc. of blood. These values are higher than generally assumed. In addition, a study of 48 placental vein samples indicated that the newborn infants' total cholesterol levels averaged 117 mg. per 100 cc. The method of determination was that described by Schoenheimer and Sperry* (J. Biol. Chem. *106:745, 1934).*

Howard J. Wetstone, M.D.
Hartford Hospital
Hartford 15, Conn.

x-ray campaigns. However, PHS adds that "mass x-ray surveys still are a major case-finding activity, particularly in high prevalence areas and for groups of expected high incidence."

The PHS statement was issued as a follow-up on a recommendation made last year that in general tuberculin testing be substituted for x-rays. One of the reasons given was to reduce the risk of radiation exposure to large segments of the population through x-rays.

As to the status now, PHS reported:

"Most states have adopted the policy of tuberculin skin tests for the younger age groups, with chest x-rays for those who react positively. Some states are also eliminating high school and college x-ray surveys and replacing them with tuberculin testing programs, followed by x-rays for those who have positive reactions. There is also a trend toward the tuberculin test for such occupational groups as school employees and food handlers."

FOREIGN VIROLOGISTS ON POLIO STUDY IN U. S.

Eight virologists from eight nations have begun a nine weeks' poliomyelitis study course in the United States and Canada. They are studying poliomyelitis diagnostic techniques and vaccine production and control under World Health Organization fellowships.

The medical scientists come from the Soviet Union, Chile, Egypt, Nigeria, Poland, Lebanon, Austria, and French Equatorial Africa. Their itinerary includes the Communicable Disease Center at Atlanta, Ga., the Institute of Microbiology's Poliomyelitis Laboratory in Montreal, Canada, pharmaceutical companies in Detroit and Indianapolis, and, finally, the National Institutes of Health. They conclude with an evaluation session with the Pan-American Sanitary Bureau.

PERSONNEL

The new director of the Pan-American Sanitary Bureau starting next Feb. 1 will be Dr. Abraham Horwitz of Chile, who will succeed Dr. Fred L. Soper, now nearing the end of his 12th year as director. Dr. Horwitz is now assistant director of the National Health Service in Chile, on leave from the directorship of the School of Public Health, University of Chile. He served with PASB from 1950 to 1953 as chief of the professional education branch. Dr. Horwitz received his medical degree from the University of Chile in 1936 and a master's degree in public health from Johns Hopkins University. Dr. Soper has been named director emeritus of PASB.

Dr. Karl Habel, research scientist and authority on rabies, has been sent by the Pan-American Sanitary Bureau on a tour of five Latin-American governments where he will advise on rabies and other virus problems. He plans to visit Brazil, Argentina, Chile, Peru, and Panama. Dr. Habel is with the National Institutes of Health and is a member of the World Health Organization Expert Committee on Rabies.

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MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. F. J. L. Blasingame, 535 North Dearborn St., Chicago 10, Executive Vice President.
1958 Clinical Meeting Minneapolis, Dec. 2-5.
1959 Annual Meeting, Atlantic City, June 8-12.
1959 Clinical Meeting, Dallas, Texas, Dec. 1-4.
1960 Annual Meeting, Miami Beach, Fla., June 13-17.
1960 Clinical Meeting, Washington, D. C., Nov. 29-Dec. 2.
1961 Annual Meeting, New York City, June 19-23.
1961 Clinical Meeting, Denver, Nov. 28-Dec. 1.

AMERICAN

October

American Academy of Pediatrics, Palmer House, Chicago, Oct. 20-23. Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Secretary.

American Association of Public Health Physicans, St. Louis, Oct. 27-31. Dr. Joseph M. Bistowish, P. O. Box 1117, Tallahassee, Fla., Secretary.

American College of Gastroenterology, Jung Hotel, New Orleans, Oct. 19-25. Mr. Daniel Weiss, 33 W. 60th St., New York 23, Executive Secretary.

American College of Preventive Medicine, Sheraton-Jefferson Hotel, St. Louis, Oct. 29-30. Dr. John J. Wright, P. O. Box 1267, Chapel Hill, N. C., Secretary.

American Dietetic Association, Bellevue-Stratford Hotel, Philadelphia, Oct. 21-24. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Heart Association, Fairmont Hotel, San Francisco, Oct. 24-28. Mr. John D. Brundage, 44 E. 23d St., New York 10, Secretary.

American Public Health Association, Kiel Auditorium, St. Louis, Oct. 27-31. Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Secretary.

American School Health Association, St. Louis, Oct. 26-31. Dr. A. O. DeWeese, 515 E. Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Penn-Sheraton Hotel, Pittsburgh, Oct. 19-24. Dr. J. Earl Remlinger, 802 Ashland Ave., Wilmette, Ill., Secretary.

American Society for the Study of Arteriosclerosis, Hotel Whitcomb, San Francisco, Oct. 24-26. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

Association of Life Insurance Medical Directors of America, Statler Hotel, Hartford, Conn., Oct. 22-24. Dr. Royal S. Schaaf, P. O. Box 594, Newark 1, N. J., Secretary.

Association of State & Territorial Health Officers, Hotel Washington, Washington, D. C., Oct. 22-24. Dr. Mack I. Stanholtz, State Office Building, Richmond, Va., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Oct. 31-Nov. 1. Dr. Austin S. Weisberger, 2065 Adelbert Rd., Cleveland 6, Secretary.

Congress of Neurological Surgeons, St. Francis Hotel, San Francisco, Oct. 29-Nov. 1. Dr. Richard L. DeSaussure, 899 Madison Ave., Memphis, Tenn., Secretary.

Eastern Psychiatric Research Association, Inc., Brooklyn State Hosp., Brooklyn, N. Y., Oct. 23-24. For information write: Dr. David J. Impastato, 40 Fifth Ave., New York.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 23-24. Dr. J. J. Baehr, Jr., 117 N. Palafox St., Pensacola, Fla., Secretary.

Oklahoma City Clinical Society, Biltmore Hotel, Oklahoma City, Okla., Oct. 27-29. Mrs. Alma O'Donnell, 503 Medical Arts Bldg., Oklahoma City, Okla., Executive Secretary.

Southwestern Medical Association, Pioneer Hotel, Tucson, Ariz., Oct. 23-25. Dr. Russell L. Deter, 1501 Arizona St., El Paso, Tex., Secretary.

Western Orthopedic Association, Multnomah Hotel, Portland, Ore., Oct. 22-25. Dr. Elden G. Chuinard, 1922 N. W. Johnson, Portland 9, Ore., Secretary.

November

American Association of Blood Banks, Netherlands Plaza Hotel, Cincinnati, Nov. 20-22. Dr. John B. Alsever, 1211 W. Washington, Phoenix, Ariz., Secretary.

American College of Cardiology, Interim Meeting, Jung Hotel, New Orleans, La., Nov. 20-22. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American Dental Association, Memorial Auditorium, Dallas, Tex., Nov. 10-13. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

American Society of Clinical Pathologists, Congress Hotel, Chicago, Nov. 2-8. Dr. Clyde G. Culbertson, Indiana Univ. Med. Center, West Michigan St., Indianapolis, Secretary.

American Society of Tropical Medicine and Hygiene, Hotel Deauville, Miami Beach, Fla., Nov. 4-7. Dr. R. B. Hill, 3575 St. Gaudens Rd., Miami 33, Fla.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 17-19. Col. Robert E. Bitner, 1726 Eye St., N. W., Washington 6, D. C., Secretary.

College of American Pathologists, Congress Hotel, Chicago, Dr. A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1, Ex Secretary.

District of Columbia, Medical Society of the, Hotel Statler, ington, Nov. 24-26. Mr. Theodore Wiprud, 1718 M St., N. W., ington 6, Secretary.

Gerontological Society, Bellevue-Stratford Hotel, Philadelphia, 6-8. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore Secretary.

International College of Surgeons, Mid-Atlantic Sectional Me The Homestead, Hot Springs, Va., Nov. 16-18. Dr. E. G. Gill S. Jefferson St., Roanoke, Va., Chairman.

Inter-Society Cytology Council, Hotel Statler, New York, Nov. 1 Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North Am Cleveland, Nov. 10-13. Dr. Erwin R. Schmidt, Box 1109, Madison Wis., Secretary.

Michigan Academy of General Practice, Sheraton-Cadillac Detroit, Nov. 12-13. Dr. F. P. Rhoades, 970 Maccabees Bldg., Detroit Convention Manager.

National Society for Crippled Children & Adults, Statler Hotel, Dallas, Tex., Nov. 16-20. Miss Catharine Bauer, 11 S. LaSalle Chicago 3, Director of Information.

New England Postgraduate Assembly, Statler Hotel, Boston, Nov. Mr. Robert S. Boyd, Massachusetts Medical Society, 22 The Fe Boston 15, Executive Secretary.

Omaha Midwest Clinical Society, Sheraton-Fontenelle Hotel, Nov. 3-6. Dr. Payson Adams, 1031 Medical Arts Bldg., Omaha Secretary.

Puerto Rico Medical Association, Santurce, P. R., Nov. 18-22. Mr. Sanchez, Box 9111, Santurce 29, P. R., Executive Secretary.

Radiological Society of North America, Palmer House, Ch Nov. 16-21. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse N. Y., Secretary.

Southern Medical Association, New Orleans, Nov. 3-6. Mr. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Executive Secretary.

Southern Thoracic Surgical Association, Deauville Hotel, M Beach, Fla., Nov. 28-30. Dr. Hawley H. Seiler, 517 Bayshore Tampa 6, Fla., Secretary.

United States Section, International College of Surgeons, Atlantic Regional Meeting, The Homestead, Hot Springs, Va. 17-8. For information address: Dr. Elbryne G. Gill, 711 Jefferson St. Roanoke 13, Va.

Western Surgical Association, Kahler Hotel, Rochester, Minn., 20-22. Dr. John T. Reynolds, 612 N. Michigan Ave., Chicago Secretary.

December

American Academy of Dermatology and Syphilology, Palmer House Chicago, Dec. 6-11. Dr. R. R. Kierland, Mayo Clinic, Rochester, Secretary.

American Medical Association Clinical Meeting, Hotel Leamington Minneapolis, Dec. 2-5. Dr. George F. Lull, 535 N. Dearborn St., cago 10, Secretary.

Association for Research in Nervous and Mental Diseases, Roosevelt, New York, Dec. 12-13. Dr. Rollo J. Masselink, 700 W. St., New York 32, Secretary.

Mid-West Forum on Allergy, Sheraton-Cadillac Hotel, Detroit, Dec. Dr. John M. Sheldon, University Hospital, Ann Arbor, Mich., Gen Chairman.

Southern Surgical Association, Boca Raton Club & Hotel, Boca Fla., Dec. 9-11. Dr. George G. Finney, 2947 St. Paul St., Baltimore Md., Secretary.

AMERICAN

1959

January

American Academy of Orthopaedic Surgeons, Palmer House, Chic Jan. 24-29. Dr. Clinton L. Compere, 720 N. Michigan Ave., Chicago Secretary.

American Protestant Hospital Association, Jefferson Hotel, St. Lo Jan. 27-30. Mr. Olin E. Oeschger, 740 Rush St., Chicago 11, Gen Secretary.

American Society for Surgery of the Hand, Palmer House, Chic Jan. 23-24. Dr. George S. Phalen, 2020 E. 93d St., Cleveland Secretary.

International College of Surgeons, Southeastern Regional Meeting, Miami Beach, Fla., Jan. 4-7. Dr. Harold O. Hallstrand, 7210 Road, South Miami, Fla., Chairman.

International Medical Assembly of Southwest Texas, Gu Hotel, San Antonio, Tex., Jan. 26-28. Mr. S. E. Cockrell Jr., W. French Pl., San Antonio, Tex., Executive Secretary.

Rocky Mountain Traumatic Surgical Association, Aspen, Colo., 28-31. Dr. Charles B. Bartell, 1600 Orange Ave., Long Beach 13, Ca Secretary.

Western Society for Clinical Research, Carmel-by-the-Sea, Ca Jan. 29-31. Dr. William N. Valentine, University of California Med Center, Los Angeles 24, Secretary.

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THE JOURNAL

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CHEMOTHERAPY OF CHORIOCARCINOMA AND RELATED TROPHOBLASTIC TUMORS IN WOMEN

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Treatment with 4-amino-N^{10} methyl pteroylglutamic acid (Methotrexate) was carried out in 27 patients with tumors classified as trophoblastic. In each case the patient's urinary excretion of chorionic gonadotropic hormone served to indicate the nature and status of the tumor. In 19 cases the diagnosis was choriocarcinoma; in 3 it was chorioadenoma. The drug was given in five-day courses at a daily dose of 10 to 30 mg., usually administered intramuscularly but sometimes by continuous intravenous drip. In five patients a complete remission was observed; all hormonal, radiologic, and physical evidence of the tumor remained in abeyance for periods ranging from 8 to 29 months. Partial remissions were obtained in 7 and transient remissions in 10 cases. Six patients have died after the initial transient response. In five cases no remission was seen. The treatment involved a substantial hazard, for side-effects were often severe and not always reversible. In view of the striking nature of the results in some cases, the morbidity and mortality must be accepted as hazards of the treatment in its present form.

WE HAVE previously reported our initial experience in the treatment of choriocarcinoma and related trophoblastic tumors with folic acid antagonist, 4-amino-N^{10} methyl pteroylglutamic acid (Methotrexate).[1] We wish now to describe our further findings in 27 women whose therapeutic response to Methotrexate has been observed during the past two and one-half years.

Our rationale in applying antifolic acid therapy in cases of malignant trophoblastic disease of women stems from earlier laboratory and clinical studies. The high requirement for folic acid of the tissues of the female genital tract became apparent from experimental studies which showed that in the rat or monkey deficient in folic acid, the uterus is incapable of growth in response to administered estrogens.[2] Moreover, the high fetal requirement for folic acid was demonstrated in the rat by Nelson and Evans.[3] Indeed, Thiersch[4] reported the induction of therapeutic abortion in women by the administration of the folic acid antagonist, aminopterin sodium. In addition, the clinical phenomenon of the macrocytic anemia of pregnancy, responding as it does to folic acid therapy, also appeared to reflect an especially high requirement for folic acid in the rapidly growing fetal and maternal tissues of pregnant women.[5] Accordingly, we postulated that choriocarcinoma and related trophoblastic

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tumors originating in the fetal chorion and initially involving the uterus might prove responsive to treatment with folic acid antagonists.

Materials and Methods

Patients were admitted to this study only when they presented unequivocal radiologic, hormonal, or clinical evidence of metastatic trophoblastic disease. This collective term refers to those patients in whom prior histological evidence of trophoblastic abnormality had been obtained and in whom subsequent clinical, hormonal, or radiologic evidence of disseminated disease was found. The criteria for the establishment of this diagnosis are presented for each case in the table. Hence these patients are referred to as having either choriocarcinoma or a related trophoblastic tumor.

The histological classification of the 27 cases of trophoblastic disease was choriocarcinoma, 19; chorioadenoma, 3; probable choriocarcinoma, 2; hydatidiform mole and necrotic uterine mass, 1; trophoblastic nodule of the cervix, 1; and inconclusive, 1. Therapy in the 27 patients resulted in remission with no evidence of residual disease in 5, remission with persistent disease in 11, initial remission and subsequent death in 6, and no initial response in 5. Four of the five in whom there was no initial response had received only one course of therapy. The criteria applied for pathology are essentially those described by Novak.[6] Problem cases were reviewed by several observers and a diagnostic consensus obtained.

The term hydatidiform mole is used when the intrauterine specimen is made up entirely of molar villi with or without associated blood clot, endometrial tissue, or decidua. The term chorioadenoma indicates that molar villi with associated trophoblast are observed within the myometrium or parametrium. The term choriocarcinoma is restricted to lesions characterized by extensive trophoblastic overgrowth with direct invasion of myometrium or parametrium or metastatic spread to extragenital sites. If the histological material suggests choriocarcinoma but is insufficient to meet the above cri-

Data on Twenty-seven Patients with

		Clinical Status in Admission			Histopathology	
Case No.	Age of Patient, Yr.	X-Ray Findings	Pelvic Examination	Other Findings	Specimens Available	Pathological Diagnosis
1	26	Extensive pulmonary metastases	Suprapubic mass, 11 cm.	Debility; anemia from massive uterine hemorrhage necessitating hysterectomy	Dilation and curettage; uterus	Choriocarcinoma
2	25	Pulmonary metastases progressing	Posthysterectomy	Pleuritic pain with right hemothorax	Uterus	Chorioadenoma destruens
3	25	Large single pulmonary metastasis	Posthysterectomy	Gastrointestinal bleeding; cerebral metastasis evidenced by diplopia; incoordination; abnormal electroencephalogram; retinal hemorrhage	Uterus; scalp nodule	Choriocarcinoma with scalp metastasis
4	18	Extensive progressive pulmonary metastases	Mass protruding from cervix; uterus 5 cm. above symphysis	Severe dyspnea; pleuritic pain; hyperpyrexia; vaginal bleeding	Biopsy of mass from cervix	Trophoblastic nodule*
5	21	Normal chest	Posthysterectomy	Had undergone pituitary stalk-section elsewhere; debilitated	Uterus	Choriocarcinoma
6	25	Extensive metastatic disease	Uterus enlarged three times; 3-by-4-cm. labial mass	Extreme dyspnea; fever; debility	Biopsy of left labial mass, uterus	Probable choriocarcinoma†; necrotic mass in uterus removed after therapy
7	30	Extensive metastatic disease; suprapubic soft tissue mass	Uterus enlarged three times normal size	Extreme dyspnea; fever; proved thyrotoxicosis	Dilation and curettage; uterus	Hydatid mole; necrotic mass in uterus removed after therapy
8	25	Normal chest	Vaginal metastases, 2 cm. by 1 cm.; posthysterectomy	Nausea; weight loss	Vaginal implants; dilation and curettage	Probable choriocarcinoma†
9	22	Normal chest; prior metastases regressed under nitrogen mustard therapy	Posthysterectomy	Asymptomatic; rising gonadotropin titer only evidence of disease	Uterus	Choriocarcinoma
10	27	Multiple pulmonary, metastases	Posthysterectomy	Weight loss; ambulatory	Dilation and curettage; uterus	Chorioadenoma destruens
11	22	Normal chest	Granulation tissue in operative field	Asymptomatic	Uterus	Choriocarcinoma(?)‡
12	22	Transient infiltrate in lower left lobe; no clear evidence of metastasis	Posthysterectomy	Asymptomatic	Dilation and curettage; uterus	Choriocarcinoma
13	23	Poorly defined multiple densities in both lungs; questionably metastatic	Posthysterectomy	Prior laminectomy for metastatic compression of spinal cord; residual neuropathy both lower extremities	Dilation and curettage; uterus	Choriocarcinoma
14	31	Diffuse nodular infiltration both lungs	Bleeding vaginal implant, 2 cm.	Vaginal hemorrhage; hemoptysis	Uterus	Choriocarcinoma

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* Nodule composed of syncytiotrophoblastic cells and necrotic tissue.

† Material suggestive but not conclusively diagnostic of choriocarcinoma.

teria, the diagnosis is listed as probable choriocarcinoma. Accordingly, nodules of trophoblastic tissue recovered from vagina or cervix are not considered sufficient basis for an unequivocal histological diagnosis of choriocarcinoma. It should be emphasized, however, that, notwithstanding these histopathological criteria, all the patients reported here presented clinical or hormonal evidence of disseminated disease at the time therapy was undertaken.

These tumors regularly provide a unique quantitative biological indicator of their extent and progression in terms of the patient's urinary excretion of chorionic gonadotropic hormone.[7] We have relied upon the hormonal titer as a major guide in clinical evaluation and therapy. These values are expressed as mouse uterine units excreted per 24 hours. The determinations were made at least once weekly by a modification of the method of Klinefelter and associates.[8] The urine specimens were quantitatively collected and were refrigerated immediately after voiding. A urinary value of 200 mouse units per 24 hours or less is normal in our laboratory for previously oophorectomized women. In those patients in whom such normal urinary titers had been obtained, a further check for absence of chorionic gonadotropic hormone was made in the serum, according to a modification of the method of Delfs.[9]

Metastatic Trophoblastic Disease

Methotrexate Treatment				Gonadotropin Titers				
Courses, No.	Duration of Therapy, Days	Total Dose, Mg.	Duration of Remission, Mo.	Before Treatment	In Remission	Most Recent	Current Clinical Status	Classification of Therapeutic Response
7	180	800	26	1,500,000	50	50	Completely rehabilitated	Remission with no evidence of residual disease by x-ray, physical examination, and titer (cases 1 to 5)
5	58	495	29	40,000	50	50	Completely rehabilitated	
4	36	500	11	1,500,000	50	50	Completely rehabilitated	
4	28	500	10	500,000	100	50	Completely rehabilitated; normal menses	
1	5	125	8	50,000	100	100	Completely rehabilitated; maintained on cortisone and triiodothyronine	
15, 7	309, 150	1,875, 875	26	200,000	1,000	500	Asymptomatic; persistent gonadotropin titer responding to repeated therapy	Remission with persistent disease manifested only by gonadotropin titer (cases 6 to 12)
10, 3§	135, 39	1,150, 37.5	16	12,000,000	500	16,000	Asymptomatic; persistent gonadotropin titer responding to repeated therapy; euthyroid	
5 3§	51 42	625 187.5	8	200,000	1,000	1,000	Asymptomatic; persistent low titer; continues on intermittent therapy	
6	75	750	5	400,000	500	2,000	Asymptomatic; continues on intermittent therapy	
3	31	375	7	500,000	500	300	Asymptomatic; marginally elevated titer	
2§	18	112.5	2	2,000	300	300	Asymptomatic; marginally elevated titer	
6	131	800	5	2,000,000	1,000	2,000	Asymptomatic	
4§	65	250	2	1,100,000	4,000	4,000	Residual neuropathy	Remission with clinically demonstrable disease (cases 13 to 16)
8§	125	895	6	2,000,000	1,000	30,000	Residual pulmonary disease by x-ray; vaginal implant completely regressed; therapy continues	

‡ Subsequent review of additional material from hysterectomy specimen failed to show clear-cut myometrial invasion by trophoblast; hence histological diagnosis of choriocarcinoma is not conclusive. § Given intravenously. ‖ DON = 6-diazo-5-oxo-L-norleucine.

In addition, because of the great frequency of pulmonary metastases, we have used frequent x-ray examinations in the therapeutic evaluation. Pelvic manifestations of disease, including uterine enlargement, vaginal implants, uterine bleeding, and secondary obstructive effects on the urinary tract, were also carefully followed. Central nervous system metastases also provided readily assessable neurological criteria of involvement and response to therapy.

All patients were treated according to a specially devised, intensive regimen with Methotrexate. The drug was given in five-day courses at a daily dose of 10 to 30 mg., usually administered intramuscularly and in some instances by continuous intravenous drip. The patient's toxicity, especially in terms of stomatitis, intestinal irritation, and cutaneous reactions was constantly appraised. The fluid intake and output were determined each day. Adequate fluid balance was maintained by the use of semiliquid or liquid diets or with parenteral fluids. Stomatitis was treated by frequent oral lavage with diluted viscous lidocaine (Xylocaine) hydrochloride.

The patient's hepatic and renal status was determined by appropriate laboratory and clinical studies both before and at frequent intervals during Methotrexate therapy. Also, at one-to-three-day intervals the leukocyte, erythrocyte, platelet, and reticulocyte counts were determined. Successive courses of therapy were not begun until all prior signs of toxicity had subsided. Continuous follow-up has been maintained in all surviving patients, and autopsy was performed on all those who died.

Results

The initial clinical status of each of the 27 patients is briefly sketched in the table. All but five were gravely ill on admission. Their most immediate clinical problems were respiratory distress due to extensive pulmonary disease and protracted vaginal bleeding. Pulmonary metastases were radiologically demonstrable in 22 patients. Cerebral involvement with evidence of increased intracranial pressure and other neurological manifestations were the presenting clinical features in five patients. Three patients were completely asymptomatic and lacked clinical or radiologic evidence of disease. They were, however, admitted for therapy because of persistence of an elevated hormone titer after prior hysterectomy.

Data on Twenty-seven Patients with

Case No.	Age of Patient, Yr.	Clinical Status in Admission			Histopathology	
		X-Ray Findings	Pelvic Examination	Other Findings	Specimens Available	Pathological Diagnosis
15	26	Multiple large pulmonary metastases	Fundus 3 cm. above pubis	Left hemiparesis following temporoparietal resection for metastasis; papilledema; debility	Cerebral metastasis	Choriocarcinoma
16	25	Multiple pulmonary metastases	Posthysterectomy	Marked dyspnea	Uterus	Choriocarcinoma
17	39	Numerous metastases	Hegar's sign; normal fundus	Metastatic nodule, 3 cm., in left breast; prior lobectomy	Metastases from lung, breast, and brain	Choriocarcinoma
18	28	Extensive pulmonary metastases	Left adnexal mass	Vaginal bleeding; pleuritic pain	Dilation and curettage; autopsy	Choriocarcinoma *
19	36	Extensive pulmonary metastases	Posthysterectomy	Cerebral metastasis; abnormal electroencephalogram	Uterus and autopsy	Choriocarcinoma
20	23	Extensive pulmonary metastases	Irregular nodular fundus	Blurred vision; headache; papilledema; Babinski's sign; abnormal electroencephalogram	Dilation and curettage; autopsy	Choriocarcinoma
21	22	Extensive pulmonary metastases	Suprapubic mass, 6 cm.	Fever; severe sweating	Dilation and curettage; autopsy	Choriocarcinoma
22	38	Normal chest; hydronephrosis and hydroureter	Posthysterectomy; hard pelvic mass	Right urinary tract obstruction requiring nephrostomy	Dilation and curettage; uterus; autopsy	Chorioadenoma destruens
23	30	Huge pulmonary metastases	Many large vaginal implants	Metastatic mass in left calf; herpes zoster; severe dyspnea	Uterus; autopsy	Choriocarcinoma
24	47	Small nodular metastases	Mass in right vaginal formix; vaginal hemorrhage	Hydronephrosis and hydroureter requiring right nephrostomy	Autopsy	Choriocarcinoma
25	48	No apparent metastases	Posthysterectomy	Coma, icterus	Autopsy	Choriocarcinoma
26	51	Extensive pulmonary metastases	Vaginal implants	Marked dyspnea	Autopsy	Choriocarcinoma
27	31	Small pulmonary metastases	Posthysterectomy	Icterus; papilledema; postcraniotomy	Brain metastasis; autopsy	Choriocarcinoma

* Nodule composed of syncytiotrophoblastic cells and necrotic tissue.

† Material suggestive but not conclusively diagnostic of choriocarcinoma.

The number of five-day courses given to any one patient varied from 1 to 22. The average number of courses given those patients who received more than one course was six. The average period of time occupied by a given five-day course was 12 days, and the average total dose of Methotrexate per patient was 620 mg.

Complete Remission.—The responses of these 27 patients assumed several distinct patterns (see table). In five patients we have observed a complete remission with no hormonal, radiologic, or physical evidence of recurrence for periods now ranging from 8 to 29 months. Three of the patients in this group had, by histopathological criteria, unequivocal choriocarcinoma; one had chorioadenoma; and in one, the only tissue specimen available was a biopsy of a fungating mass of necrotic tissue containing a few syncytiotrophoblastic cells exuding from the cervix. However, this patient and three others in this group of five presented pulmonary metastases by x-ray on admission, and four had undergone hysterectomy. Two of these cases are briefly summarized below.

CASE 3.—A 25-year-old woman, para 1, gravida 2, had undergone hysterectomy nine months prior to admission, and the surgical specimen revealed choriocarcinoma. She was then symptom-free until three weeks prior to admission when, because of severe abdominal pain, she underwent resection of a benign cyst of the left ovary. A few days later, a bleeding scalp nodule was resected and proved to be metastatic choriocarcinoma. Two weeks prior to admission the patient developed nausea and vomiting, severe frontal headache, and blurring of vision. On admission, intracranial metastasis was manifested by peripapillary hemorrhage in

Metastatic Trophoblastic Disease—(continued)

Methotrexate Treatment				Gonadotropin Titers				
Courses, No.	Duration, of Therapy, Days	Total Dose, Mg.	Duration of Remission, Mo.	Before Treatment	In Remission	Most Recent	Current Clinical Status	Classification of Therapeutic Response
5§	90	350	4	1,000,000	50,000	500,000	Initial regression of pulmonary and intracranial disease followed by rapid progression of pulmonary metastases despite continued methotrexate therapy	
7	127	1,025	4	6,000,000	20,000	20,000	Residual pulmonary disease; therapy continues	
7	100	775	7	20,000	500	500	Died abruptly from cerebral hemorrhage due to residual tumor; chest x-ray negative prior to death	Died during relapse after initial remission (cases 17 to 22)
9	124	875	3	50,000	2,500	30,000,000	Regression of pulmonary and pelvic metastases followed by rapid progression despite nitrogen mustard and DON‖ therapy	
6	81	685	3	8,000,000	10,000	500,000	Regression of pulmonary and intracranial metastases followed by progression despite nitrogen mustard and DON‖ therapy	
7, 1§, 3	70, 2, 25	875, 1,000, 300	4	4,000,000	5,000	1,000,000	Regression of pulmonary and intracranial metastases followed by progression despite intrathecal methotrexate, nitrogen mustard and DON‖ therapy	
6	55	825	3	4,000,000	500,000	500,000	Slight regression of pulmonary and pelvic disease followed by rapid progression and thyrotoxicosis; nitrogen mustard and DON‖ therapy without effect	
5	90	350	3	250,000	100	100	Death after fifth course; jaundice and small intestinal ulceration attributed to methotrexate toxicity; no tumor tissue identified	
3	38	315	...	1,000,000	...	1,500,000	Died of progressive pulmonary insufficiency	Died during initial courses of therapy without response (cases 23 to 27)
1	5	125	...	20,000	...	40,000	Died after first course; probably due to methotrexate toxicity	
1	3	45	...	...	...	...	Died during first course on third hospital day	
1§	5	75	...	500,000	...	200,000	Died on 12th hospital with increasing anoxia; autopsy suggestive of methotrexate toxicity	
1	4	100	...	500,000	...	500,000	Died on ninth hospital day	

‡ Subsequent review of additional material from hysterectomy specimen failed to show clear-cut myometrial invasion by trophoblast; hence, histological diagnosis of choriocarcinoma is not conclusive. § Given intravenously. ‖ DON = 6-diazo-5-oxo-L-norleucine.

the left fundus, diplopia, and left strabismus, and there was a distinctly abnormal electroencephalogram compatible with a right parietal or possibly posterior fossa lesion. She passed numerous large tarry stools and required multiple transfusions.

Over a 40-day period she was given four courses of Methotrexate, each consisting of 25 mg. given daily and intramuscularly for five days. Varying degrees of oral and hematological toxicity were encountered with each course. The fourth course induced extremely severe stomatitis with extensive buccal ulceration. The gastrointestinal bleeding subsided during treatment, and there was prompt reversal of all neurological abnormalities. Electroencephalograms taken before the third course and repeated 20 days later were both normal. As shown in figure 1, the hormone titer fell from 1,500,000 units to less than 100 units, and the pulmonary lesion promptly regressed. Since the patient's discharge, her chest x-rays remain negative, her hormonal titer is within normal limits, and no physical or subjective manifestations of disease are detectable. Her remission has now persisted for 11 months.

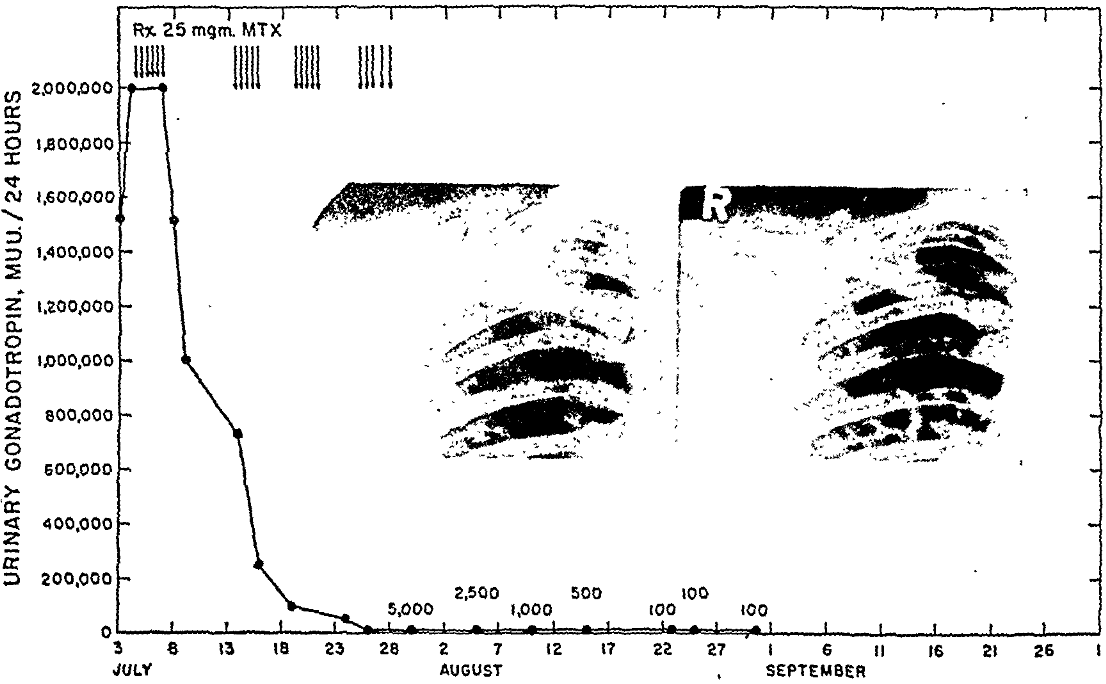

Fig. 1 (case 3).—Radiologic and hormonal response in patient with choriocarcinoma. Vertical arrows indicate courses of Methotrexate.

Case 4.—A 18-year-old woman, gravida 1, para 0, had passed a mole two and one-half months prior to admission. She then had intermittent vaginal bleeding and numerous severe episodes of high fever for which she received penicillin and streptomycin. One and one-half months prior to her admission, metastatic lung lesions were demonstrated, and results of the Aschheim-Zondek test became strongly positive. The week before admission she was given numerous blood transfusions and developed severe left lower quadrant pain with recurrent high fever. On the patient's admission, the uterus was enlarged three times and extremely tender. A 4-cm. ovoid, red, fungating mass presented from the os cervix. Biopsy proved this to consist of syncytiotrophoblastic cells associated with considerable hemorrhage and necrosis. She required numerous transfusions and continuous oxygen therapy.

Over the ensuing 53 days she was given four courses of Methotrexate intramuscularly, with each course consisting of 25 mg. daily for five days. After the first course little toxicity was encountered. However, the patient experienced severe oral toxicity and marrow depression after the last three courses. During the first two weeks of treatment she continued to be gravely ill with extreme dyspnea, pleuritic pain, hemoptysis, and lower abdominal pain with tenderness. Ten days later distinct improvement was manifest in terms of radiologically demonstrable regression of the pulmonary metastases (fig. 2), marked improvement in respiratory function, visible regression of the cervical mass to a diameter of 2 mm., regression of the uterus to half its previous size, and loss of lower abdominal pain and tenderness. The gonadotropin titer continued to fall to within normal limits (fig. 2), and the chest x-ray reflected continuing improvement during ensuing courses of therapy. Since discharge, she has presented no hormonal, radiologic, or clinical manifestation of recurrent disease. Her remission has now persisted for the past 10 months. (Duration of remission is calculated throughout this report from the time of initial favorable response to therapy as manifested by initial reduction in gonadotropin titer or objective regression of metastases.)

Partial Remission.—Seven patients have presented a less complete response to therapy in that they continue to exhibit unequivocal hormonal evidence of persistent disease. However, each has shown a striking reduction in titer, and three have shown complete regression of pulmonary metastases. We can find no radiologic or physical evidence of active disease in any of these seven patients, but their hormone titers, although very much lower than before therapy, clearly reflect latent disease. Three of these patients have been treated on successive occasions whenever their titers increased. The hormonal and radiologic responses of one of these patients (case 7) who has been effectively treated on three occasions during the past 16 months are shown in figures 3 and 4. The x-rays of a patient (case 6) who has been similarly treated during the past 26 months are shown in figure 5.

Transient Remission.—Ten patients have initially experienced a substantial but transient remission of three to six months' duration and have subsequently developed apparent refractoriness to Methotrexate therapy. All of these patients showed a marked depression of hormone titer during remission; six exhibited regression of pulmonary metastases, and three showed objective improvement in neurological status. Notwithstanding additional Methotrexate therapy and, in four instances, brief courses of mechlorethamine hydrochloride (nitrogen mustard) and 6-diazo-5-oxo-L-norleucine, all of these patients have shown progression of disease, and six have died. A marked rise in gonadotropin titer was observed in every patient as the disease became exacerbated (see table). One patient (case 16) still has pulmonary disease, but her titer is decreasing as she continues on Methotrexate therapy.

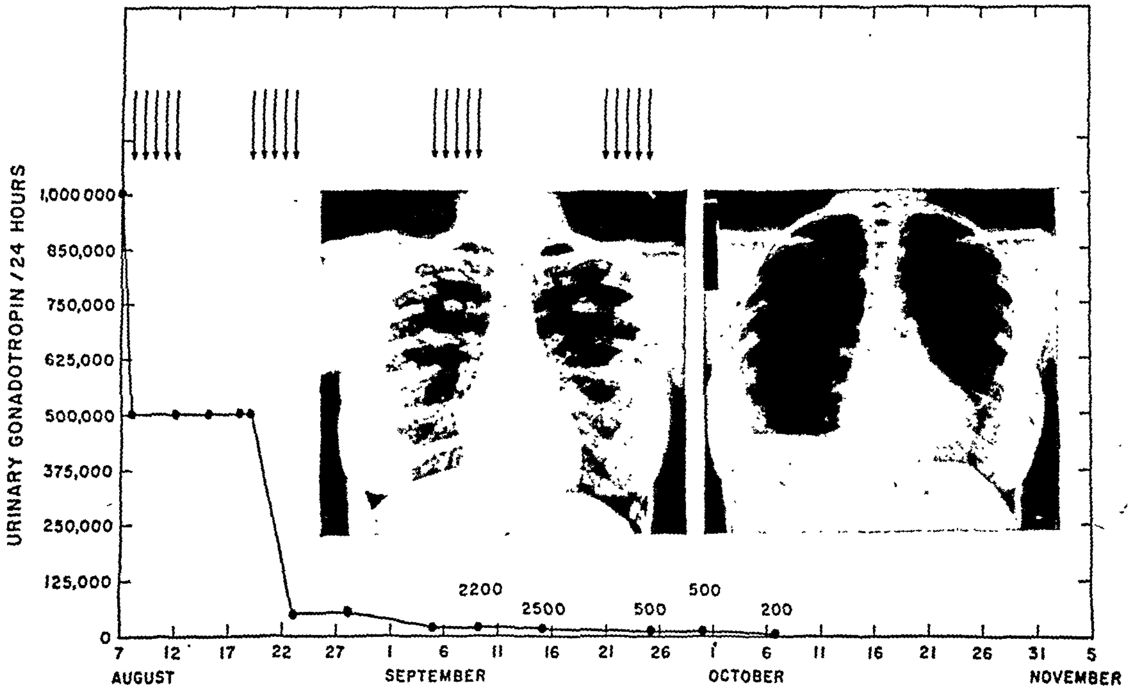

Fig. 2 (case 4).—Radiologic and hormonal response in patient with trophoblastic nodule. Vertical arrows indicate courses of Methotrexate.

Among the six patients who have died after initial response, one (case 22) died from drug toxicity. She had previously shown numerous drug allergies. She had tolerated four preceding courses of Methotrexate with moderate stomatitis and with evidence of marrow depression but had exhibited a rather severe drug rash with each course. After the fifth course she developed jaundice, enteritis, a profound leukopenia, and died. Autopsy revealed an acute toxic hepatitis, extensive gastrointestinal ulceration, and extreme marrow destruction. Two other patients who were profoundly debilitated on admission died after an initial course of Methotrexate. Whereas the lethal outcome in these two cases was not clearly attributable to drug toxicity, the autopsy findings indicate that this was probably a contributing factor.

These instances of probable lethal toxicity stand in direct contrast with the reversible toxicity encountered during the Methotrexate regimen used in these studies. We have now administered 220 individual courses of therapy to these 27 patients and to 13 additional patients with other types of tumors. Hence, one may conclude that such intensive Methotrexate therapy is clinically feasible although certainly not without substantial hazard.

Comment

The most frequent manifestations of reversible toxicity are stomatitis, marrow depression, drug rash, anorexia, and nausea with occasional emesis and diarrhea. These manifestations vary widely in intensity from patient to patient and even in the same patient from one course to the next. Accordingly, constant medical surveillance of the patient's status is mandatory, and appropriate supportive medical and nursing care should be readily available. Since Methotrexate is largely excreted in the urine, the maintenance of adequate fluid intake and output is of prime importance. Preexisting hepatic or renal dysfunction should serve as contraindication to such intensive therapy. This regimen should also not be applied in the presence of residual marrow suppression after radiation or other forms of chemotherapy. Since the maximum clinical toxicity is most frequently encountered from four to seven days after the completion of a five-day course, it is most often not feasible to control these manifestations by drug withdrawal. Moreover, it is imperative to delay further therapy until the signs of prior toxicity have subsided.

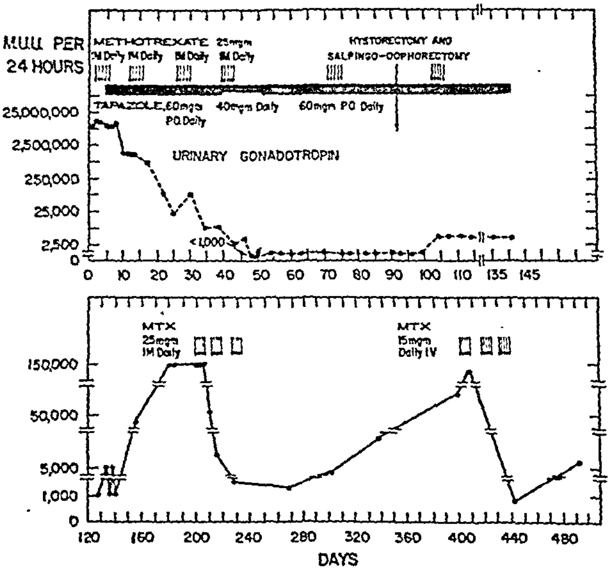

Fig. 3 (case 7).—Repeated hormonal response of patient to intermittent Methotrexate therapy during 16 months. Vertical arrows indicate courses of Methotrexate.

In the section on "Materials and Methods" the therapeutic results to date are summarized. If we exclude the four patients who received only one course of therapy just prior to death, it will be noted that 22 of the remaining 23 showed an initial substantial response to therapy, most notably in terms of suppression of hormone titer. These responses are graphically summarized in figure 6 and are detailed in the table. This reflects an almost uniform initial sensitivity of these trophoblastic tumors to Methotrexate and indicates the therapeutic potential of this regimen.

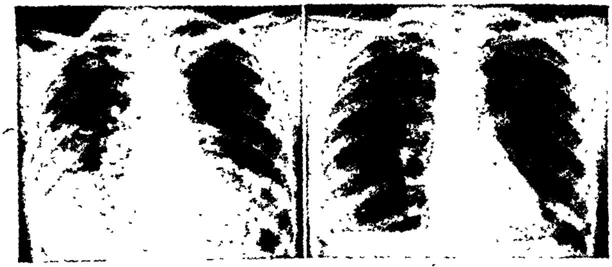

Fig. 4 (case 7).—Initial radiologic response in patient (*left*) on admission and (*right*) after five courses of Methotrexate in 75 days. Chest x-ray 16 months after start of therapy remained negative.

It is, however, much more difficult to assess the immediate relationship of the Methotrexate therapy to the total clinical course, particularly in those patients who thus far exhibit no residual evidence of disease. Subsidence of even metastatic trophoblastic disease without the specific therapy used by us is a well-documented phenomenon.[10] Moreover, a clinically benign course has been recorded in patients presenting unequivocal metastatic choriocarcinoma.[10] Conversely, the experience reported here and that of other observers includes fatal cases associated with lesions sometimes regarded as not unequivocally malignant.[10]

Because of the limited number of cases in which both clinical course and complete histological analysis are available, we have little statistical basis on which to differentiate the outcome in our cases from potentially spontaneous clinical events. However, the spontaneous occurrence of 5 complete remissions among 27 unselected cases of advanced, metastatic trophoblastic disease may be regarded as highly improbable, particularly since three of these five patients had unquestioned choriocarcinoma. Moreover, the unequivocal quantitative evidence of the extreme initial responsiveness of these tumors to Methotrexate would serve to support the interpretation of a cause and effect relationship between the benign course in these cases and the therapy applied.

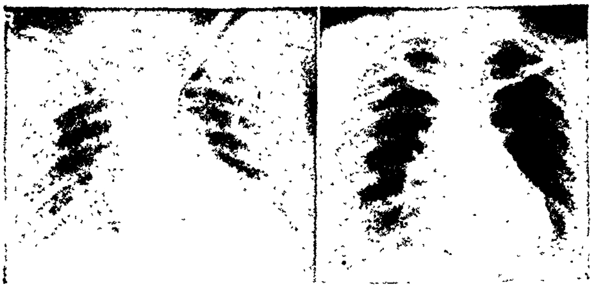

Fig. 5 (case 6).—Radiologic response in patient (*left*) on admission and (*right*) after six courses of Methotrexate in 125 days. Chest x-ray 26 months after start of therapy remained negative.

The problem of initial and acquired drug resistance is common to all forms of chemotherapy. In the present experience we have noted only one instance (case 23) of apparent initial drug resistance. This patient had had extensive radiation and several courses of nitrogen mustard therapy before she received Methotrexate, and this prior treatment may have been a factor in the failure of response to Methotrexate.

The acquired Methotrexate resistance among previously responsive patients has assumed a fixed pattern in most instances, since additional intensive Methotrexate therapy has usually proved totally ineffective. However, in three patients (cases 6, 7, and 8) some recovery of responsiveness has been noted after varied intervals off therapy (fig. 3). For this reason intermittent therapy aimed at maximally obtainable suppression of gonadotropin titer and therefore presumably of trophoblastic disease may ultimately provide the most prolonged periods of remission. In any case, it is too early to establish an optimum mode of management for these patients. Hence our further trials will have to remain largely exploratory.

Other forms of chemotherapy for malignant trophoblastic disease have been described. Thus, nitrogen mustard has been reported[11] to induce remissions associated with regression of pulmonary metastases and suppression of gonadotropin titer. Also, Li and Magill[12] have presented data indicating significant response to 6-diazo-5-oxo-L-norleucine. One of our patients (case 9) had been treated with nitrogen mustard with unequivocal regression of pulmonary metastases one year before admission to our service. Accordingly we have attempted mustard therapy and only brief courses of therapy with 6-diazo-5-oxo-L-norleucine in four of our Methotrexate-resistant patients with advancing disease. In this advanced clinical phase we observed no effect in any of these four patients from either form of therapy. These limited observations suggest a degree of crossover in tumor resistance to the several forms of chemotherapy applied.

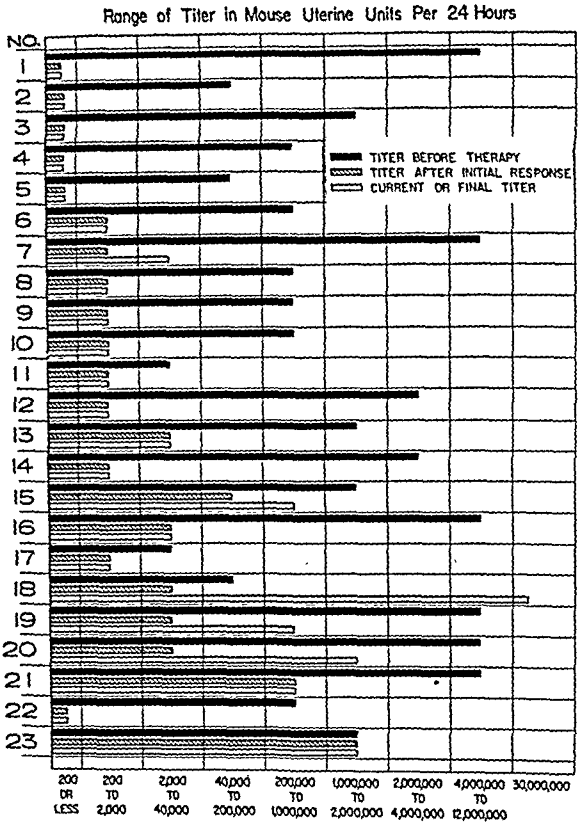

Fig. 6.—Gonadotropin responses in 23 patients who received more than one course of Methotrexate.

Summary

Since fetal and maternal tissues are found to require high amounts of folic acid for their normal metabolism, the therapeutic potential of the folic acid antagonist, 4-amino-N^{10} methyl pteroylglutamic acid (Methotrexate) in the treatment of choriocarcinoma and related trophoblastic tumors has been studied in 27 women. These patients were treated according to a highly intensive regimen, in which certain toxic hazards were present. Therapeutic indexes included (*a*) serial x-rays, (*b*) physical findings reflecting pelvic, cerebral, and pulmonary involvement, and (*c*) frequent quantitative determination of the urinary excretion of chorionic gonadotropic hormone.

Remissions varying from 29 to 2 months have been induced in all but one patient who had received more than one course of therapy. In five patients these continuing remissions are attended by no radiologic, physical, or hormonal evidence of residual disease. In 11 patients showing an initial remission, Methotrexate resistance has been encountered with varying manifestations of persistent or progressive disease. Six patients initially responded but subsequently developed resistance to Methotrexate and died. One patient died of drug toxicity during remission, and drug toxicity may have contributed to the death of two other severely debilitated patients.

These experiences demonstrate that metastatic trophoblastic disease is susceptible to treatment and that significant clinical remissions may be obtained. Hence, although the chemotherapeutic regimen is somewhat hazardous, the morbidity and mortality may be regarded as acceptable.

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IRRADIATION CYSTITIS

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Whether one form of irradiation therapy is more likely than another to initiate an irradiation cystitis is unknown. Certainly, the variations in sensitivity among patients must be great. Patients who have only mild symptoms may need no treatment. Patients who have superimposed inflammatory processes benefit greatly from the use of modern chemotherapeutic agents and antibiotics plus local therapy, such as lavage of the bladder and the instillation of a 5% solution of a mild silver protein preparation. Spontaneous healing is much better than some procedure for urinary diversion.

Irradiation cystitis is one form of factitial cystitis. This entity is not common, yet the frequency of occurrence is increasing. More and more female patients who have malignant lesions of the uterus, and especially the cervix, are being treated with either x-rays or radium. At present, many patients with carcinoma of the cervix receive both forms of therapy.

The true incidence of irradiation cystitis will never be known. Patients become lost to record, or follow-up examination is impossible. The symptoms of some patients are so mild and prevail for such a short time that no mention of them is made to the attending physician. In the years 1950 through 1954, 50 female patients with a diagnosis of irradiation cystitis were seen in the section of urology of the Mayo Clinic. Some of these had received irradiation therapy at the Mayo Clinic and some had been treated elsewhere. All had carcinoma of the uterus, cervix, or ovary.

The etiological agent of course is the irradiation therapy used in such cases. Whether one form of therapy is more likely than another to initiate a reaction in the bladder is unknown. Certainly, the variations in sensitivity among patients must be great. Moreover, there seems to be no correlation between the amount of therapy administered and the intensity of the reaction.

The range of ages may vary greatly. Two of our 50 patients were between 20 and 29 years of age, 13 between 30 and 39, 13 between 40 and 49, 15 between 50 and 59, and 7 between 60 and 69. No patient in any single decade of life appears to be immune, and there is no preponderance of reactions in any one decade. This is more or less what would be expected of such a condition. Of great interest is the length of time between irradiation and the development of the reaction in the bladder. Of our 50 patients, 22 showed a reaction within the first year, 8 by the second year, 5 by the third, 4 by the fourth, 2 by the fifth, 3 by the sixth, 2 by the seventh, and 1 by the eighth year. One patient showed no reaction until the 11th year, one after 12 years, and one after 14 years. This once more emphasizes the individual sensitivity or resistance to the therapy used.

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Clinical Appraisal

Pathological Aspects.—The pathological process has been described by many authors. There appears to be no doubt that the circulation of the bladder is impaired. An inflammatory process also is usually present. The inflammation may be transient and later subside, or endarteritis may develop which slowly leads to ischemia. Even later, necrosis or ulceration may develop, followed by either fistula formation or scar.

Any part of the bladder may be involved in the pathological process. When radium has been used, the most common site is the posterior wall in the midline and just back of the interureteric ridge. When vesicovaginal fistula is present, this ridge is the usual site of the opening in the bladder.

Symptoms.—As has been said, the symptoms associated with irradiation cystitis may be very mild and persist for only a short time. However, other patients may complain strenuously of severe symptoms, such as frequency of urination, dysuria, urgency of urination, and pain in the area of the bladder. Thirty of our patients had gross hematuria as the predominant urinary symptom. Some noted the hematuria only on one or two occasions. Others suffered gross hematuria over a long period.

Diagnosis.—The diagnosis of irradiation cystitis may be difficult at times. The history may be helpful. Any patient who has urinary symptoms with a history of irradiation therapy to the uterus or cervix of the uterus should be suspected of having irradiation cystitis. An ordinary type of inflammatory cystitis may confuse the cystoscopic picture. Likewise, interstitial cystitis may make the diagnosis uncertain. At times, even tuberculous cystitis may obscure the correct diagnosis. Certainly, any type of grossly inflamed vesical mucosa may leave the correct diagnosis uncertain for a time. Moreover, extension of a lesion from an extraurinary source or a primary lesion of the bladder may have to be excluded.

Cystoscopic Findings.—The earliest cystoscopic finding seen after irradiation therapy is marked edema of the mucosa of the bladder. The mucosa is glistening and white, with a suggestion of free fluid under the vesical mucosa. This process may disappear and leave the mucosa entirely normal or it may change to hyperemia, with the blood vessels distended over most of the wall of the bladder. Later, this picture may change until only petechial areas are seen, with small blood vessels extending from small reddened centers which may or may not be ulcerated. Such areas may remain unchanged for years. They may also fade gradually away, to be succeeded by scarring in the central area of inflammation.

The severe and really late cystoscopic finding is an ulcerated lesion with a raised, granulomatous edge and a central area of sloughing. This lesion also may be covered with a variable amount of mucus. Such a lesion may develop any place in the bladder. As a rule it is found in the midline, just back of the interureteric ridge. However, the base of the bladder or the lateral walls also may contain such a lesion. This is the pathological process which must be distinguished from a primary neoplasm or from an extension of an extraurinary tumor. The mucus and sloughing tissues may be removed by the blunt specimen forceps, or the heel of a direct-vision cystoscope may be used to scrape the material away, down to the granulation tissue. A sharp specimen taker then may be used to remove material for microscopic examination. Such a procedure is not without danger, since perforation of the bladder has been known to occur when tissue is thus taken. Frequently, blood may ooze rather severely from the area when the specimen is removed for biopsy. This area should not be fulgurated, since loss of blood supply to this portion of the bladder already has been sustained. Continuous irrigation of the bladder with saline solution or a diluted solution of silver nitrate will be sufficient to manage any such hemorrhage likely to be seen.

Sometimes this chronic lesion may be covered with incrusted urinary salts. These incrustations must be removed before a satisfactory specimen for biopsy can be taken. Often the patient with such a lesion of the bladder will be benefited and the hemorrhage will be controlled if, after the specimen has been removed, the area is touched with a 20% solution of silver nitrate.

Treatment and Results

Those patients who have only mild symptoms may need no treatment. Many patients have symptoms which persist for only a short time, and they never complain again about the urinary tract. Those patients who have superimposed inflammatory processes benefit greatly from the use of modern chemotherapeutic agents and antibiotics plus local therapy, such as lavage of the bladder and the instillation of a 5% solution of a mild silver protein preparation (Argyrol). However, it is our impression that no form of medication or treatment can ensure cure of a severe lesion. The primary objective is to keep the bladder as clean as possible and to alleviate the patient's symptoms. Only time will determine if the blood supply will return sufficiently to allow healing to take place. The necrosis may become worse or a fistula may develop.

If a fistula becomes apparent, attempt at closure is of little benefit and should be withheld as long as possible. It has been known that a vesicovaginal fistula developing in a patient with irradiation cystitis has healed spontaneously. The end-result for such a patient is much better than it would be if some procedure for urinary diversion had been performed.

Thirty-one patients left the Mayo Clinic without receiving treatment to the urinary tract. Eighteen of these patients have had no further difficulty with the urinary tract to the time of this writing. We have been unable to follow the condition of seven patients. Three patients have had recurring bouts of gross hematuria. A vesicovaginal fistula developed in one patient and a rectovaginal fistula developed in another. Another patient has had repeated bouts of infection of the urinary tract.

Nineteen patients were treated at the clinic during one or more visits. Lavage of the bladder and instillation of a 5% solution of a mild silver protein preparation constituted the most common form of therapy. Three other patients underwent removal of sloughing tissues and incrustations. Several patients received repeated courses of chemotherapy. It is of interest that 12 patients remained symptom-free. Three patients have had recurrent bouts of gross hematuria. Vesicovaginal fistulas have developed in two. One patient has had recurring bouts of urinary infection. One patient underwent cutaneous ureterostomy because of obstruction to the ureters.

Conclusions

Thirty of 50 patients who had had irradiation cystitis were without symptoms of disease of the urinary tract at the time of this writing. Eighteen were not treated; 12 were treated. The objective in the care of these patients is alleviation of the symptoms and maintenance of the bladder in as clean a condition as possible in the hope that the lesions will heal naturally. In view of the serious nature of the original lesions and the therapy necessary to combat these lesions, it is somewhat surprising that more patients do not suffer from irradiation cystitis. Severe complications do occur and are to be expected.

PEDIATRICS IN TRANSITION

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We live in a world of rapid change to which our own world of pediatrics is not immune. Indeed, events move so swiftly that it is difficult not to be confused or dismayed or even, at times, deeply disturbed. I was reminded of this by a stimulating exchange of letters [1] a few months ago, in the *Journal of Pediatrics*, which dealt with the trials and tribulations of pediatric practice today. A number of you no doubt recall this correspondence. The letter [1a] which sparked the whole flurry raised the question, "What is today's pediatrician for?" The author contrasted the erudite, clinical training which many young physicians receive in teaching hospitals with the actual demands of everyday practice. What is wrong, this correspondent asked, that makes at least a third of the pediatricians dissatisfied enough to wish themselves out of the practice of pediatrics? "Is it the individual or the specialty, or both?" This blast drew some quick and telling fire. The replies tended to point out that pediatric practice is satisfying, provided that (1) the individual has the proper temperament and (2) there is some reorientation of pediatric education to give adequate appreciation of health supervision.

The practice of the pediatrician has been changing under the impact of many socio-economic factors. Foremost among these is the continued improvement in the general physical, educational, and social well-being of children in the United States. As a result, the pediatrician is confronted less frequently with severely sick children and is called upon more and more for the guidance of the healthy child, the prevention of disease and trauma, and the care of the handicapped and emotionally disturbed child. The teaching of pediatrics in medical schools needs to be modified in view of this change, and research programs should recognize the new challenges and opportunities that have resulted from it.

But this correspondence points up the fact that many in pediatrics are asking this question: "What is today's, or tomorrow's, pediatrician for?" Examination of some of the underlying factors which have raised this question ought to help our understanding, our acceptance, and, indeed, our preparation for the future.

Chairman's address, read before the Section on Pediatrics at the 107th Annual Meeting of the American Medical Association, San Francisco, June 26, 1958.

Socioeconomic Factors Affecting Pediatrics

Foremost in socioeconomic factors, of course, is the tremendous improvement in the general physical, educational, and social well-being of children in the United States. No group in the medical profession has contributed more to these gains than pediatricians. These favorable conditions for raising children, coupled with the sustained high birth rate since the great depression of the 1930's, mean that children under 18 years of age now make up a third of the nation's total population. Families are tending to be larger and more of them are being held intact, thanks to the spectacular reductions in maternal deaths and in those from tuberculosis, pneumonia, and rheumatic heart disease in those under the age of 40.

Of the greatest significance socioeconomically has been the rising standard of living in the United States, with the average family income the highest in history. Despite the current economic situation, there is general agreement among economists that productive power will continue its further development and expansion.

We must not underestimate the public's increasing interest in health as a factor in the use of pediatric services. As physicians, we may deplore the exploitation by unprincipled advertisers of this public eagerness for better health, but there can be no doubt that health publications, the press, radio, movies, and television—the so-called mass media—have made and can continue to make health supervision a desirable and purchasable commodity, at least for children.

In the last decade, there has been a great movement of population from the cities into the outlying areas. This has brought young families to housing developments 10, 20, and 30 miles from the big cities. These new or greatly expanded communities have required many new health services. These new families want the best possible care for their children. This has attracted many young pediatricians to these areas. While it has brought excellent pediatric care to the suburbs, it has at the same time drained off some of the most promising teaching talent from the medical centers and also deprived young pediatricians of the intellectual stimulation of teaching institutions.

Impact on the Content of Practice

One of the most disturbing results of these socioeconomic factors is the gap, which may be widening as noted above, between the practitioner of pediatrics and the teacher of pediatrics. Davison[2] has called this the "pediatric shift." In other words, practice is changing from one largely composed of the diagnosis and treatment of very sick children to one in which child health supervision, diagnostic problems, and management of special disorders, such as prematurity and crippling conditions, predominate. Some schools have not caught up with this change. Hansen's recent survey[3] of a statewide group of pediatricians to determine the inadequacies of past pediatric training and experience indicates that about half thought there should have been more emphasis during their training on allergy and psychiatric aspects of behavior problems. None of the group felt that he should have had more training in such categories as "water and electrolyte disturbances, metabolic disorders, contagious diseases, parasitology, hematology, and typically diagnostic problems."

Hospital admissions have changed too. Lawson[4] points out that improvement in nutrition has almost eliminated the need of inpatient care of children for disorders resulting from nutritional causes. Immunization and antibiotic therapy have had even greater influence on hospital admissions, though indiscriminate use of antibiotics has contributed several new problems, such as resistant infections and side-reactions to antibiotics. Trauma and accidental ingestion of toxic substances have become more frequent phenomena in practice as diseases have been more effectively controlled.

These changes are beginning to affect pediatric education. Some educators are now placing more emphasis on preparing the pediatrician as a physician to children in health and for minor as well as for severe illnesses. More attention is being given to providing medical students and pediatric residents with opportunity for long-term follow-up of the same children, including well children, to give a greater appreciation of the many factors which influence a child's physical and emotional health over a period of time. Fischer[5] has called attention to the widening scope of the pediatrician's world to include familiarity with accident prevention, adoption problems and practice, school health programs, handicapped children, and problems of the adolescent. Crook and his associates[10] would add allergy to this list. Helping to fill the void in the practicing pediatrician's knowledge of these subjects are some of the standing committees of the American Academy of Pediatrics, such as the accident prevention, adoptions, and school health committees. More opportunity should be given pediatric residents to secure knowledge of social pediatrics through arrangements with community health and welfare services. The Academy's Committee on Medical Education has played a most influential role, especially through its regional conferences, in helping to close the gap betwen the practitioner and the educator. They have permitted comparisons among medical centers in regard to the teaching programs and brought together teachers, research workers, and those in practice. There is general agreement that for general practice a rotating internship should be at least two years in length with a minimum of six months spent in pediatric training. For the present, the view is that at least two years of pediatric training is required for eligibility for examination by the Board of Pediatrics. Postgraduate education is being recognized as of increasing importance, and the Academy's Committee on Education is developing a special program which should be a significant contribution toward strengthening relationships between teachers and practitioners.

In considering the future of pediatrics, and especially the future of the practitioner of pediatrics, we need to consider the possibility that the work of the pediatrician may expand to include a broader age group. For some years, pediatric leaders have called attention to the importance of providing service to the adolescent age group, and a number of pediatricians cover this age range. The horizon of pediatrics is broader perhaps than many of us visualize. For example, at the 54th Annual Congress on Medical Education and Licensure which was held in Chicago this past winter, one of the major emphases was on the need to prepare physicians to practice family medicine.[6] This raises the interesting possibility that in the pediatrician we may have the prototype of the family doctor of tomorrow. Certainly, no other branch of medicine is at present so well prepared to apply and develop the principles of preventive medicine and to care for the entire family's health.

Need for Research and Its Support

In looking to the future, and regardless of the eventual metamorphosis of pediatrics, it is imperative to broaden the scope of pediatric research. In our concern for the adequate preparation of physicians to practice pediatrics, we cannot lose sight of the primary responsibility of the medical school to advance knowledge and not merely to impart it.

Darrow[7] recently reviewed the impact on pediatrics of the brilliant group of investigators which comprised the pediatric teaching and research group at the Harriet Lane Home for Invalid Children when John Howland became the first full-time professor of pediatrics in 1913. Marriott, Parks, Blackfan, Powers, Gamble, Kramer, and so many others of that group brought many disciplines to bear on the problems of infants and children, whether the fields have been biochemistry, bacteriology, virology, public health, psychology, psychiatry, or sociology. Not only has this created modern pediatrics but it has developed concepts now applied generally in medical practice: for example, the application of biochemical and physiological principles to human fluid therapy and improved nutrition, or the concept of the "whole child," which has become the "concept of the patient as a person." Perhaps the unique contribution of pediatrics has been to spearhead the development of preventive medicine as a purchasable commodity of private practice. Pediatrics has from its earliest beginnings cultivated this concept and has gradually deepened and broadened this service so that more and more pediatricians are being asked to deal with emotional problems of the child and of family life. Under the vision and stimulating guidance of its early leaders, pediatrics has, to an increasing degree, recognized and accepted the social and community responsibilities involved in medical care. The problems involved in child care today and tomorrow call for the same high dedication, imagination, and resourcefulness in both research and teaching as those which the great pediatric leaders exemplified.

There is still much to learn about children of every age group. Interesting phenomena are by no means all associated with disease. A great need exists for research into accident causation and in the study of child behavior. If pediatrics is to continue to spearhead the evolution of medical practice, we must give our best young minds—the pediatric residents who are to be the great teachers and researchers of the future—opportunity to investigate problems in genetics, enzyme systems, nutrition, epidemiology, and the behavioral sciences, as well as the physical sciences. In this connection, voluntary agencies who have raised large sums of money from the public should be encouraged in their efforts to take a broad concept about using their funds to support medical education and research. The medical profession, which has ties with many voluntary health groups, could be more active in helping these worthy organizations develop policies which permit the use of their moneys for basic research and assistance to medical schools. One way is to recognize that it costs a medical research institution a substantial amount of money —the "overhead"—to conduct a research program. Most voluntary agencies making research grants to medical schools recognize this by supplementing the amount of the research grant by 8 to 10%. Cost studies by major universities show that the real cost is nearer 50%.[8] Failure to approximate this cost is one of the major factors in the financial plight of medical education and research. Too much emphasis on purely clinical investigations or studies of methods and techniques in the disease category of the voluntary health agency is also self-defeating. Breakthroughs in a number of the major disease categories, such as the cardiovascular-renal, neoplastic, neurological, and metabolic disorders, is most likely to come from more intensive work in fundamental life processes. Some of the voluntary agencies have made encouraging contributions in these directions, notably, the National Foundation for Infantile Paralysis, the American Heart Association, the American Cancer Society, and the Association for the Aid of Crippled Children.

Closer Ties Between Practitioner and Teacher

In discussing the importance of the teacher and the researcher to the future of pediatrics, it is necessary to recognize that a basic reason for the profound influence which our specialty has had on child health and on medicine in general has been close understanding and active cooperation on pediatric problems between those in academic work and those in practice. Those who helped create this section in the American Medical Association 70 years ago represented both; the same is true of the American Academy of Pediatrics. Professional groups primarily composed of teachers and investigators are most necessary and desirable, but it is not good for children or for the future of the specialty for too much isolation to exist between these interests. Isolation breeds intolerance, suspicion, and misunderstanding. Let us find more ways of working together. One illustration of this has been the active participation of the Academy, the American Pediatric Society, and the Pediatrics Section of the A. M. A. is working with the American Board of Pediatrics during the past year in a review of its policies and procedures.

This discussion was begun on a note which indicated that some in pediatrics may be dissatisfied with their lot or worried about their future. I have tried to outline some of the factors which might account for some of these feelings. The point has been made that pediatrics, as a specialty, is changing—a fact perhaps obvious to all—but this review may help gain a better perspective of ourselves at the moment and our prospects. In essence, the dissatisfactions with pediatric practice lie more with the individual's own misconceptions of the realities of pediatric practice today and with the individual's attitude toward children. As Powers[9] has expressed it, "There are many aspects of pediatric experience which attract graduates in medicine, but I think the chief magnet is the enjoyment and satisfaction of working with and for children—not sick children, not healthy children, not handicapped children, not infants, toddlers, teen-agers or adolescents—just children!" The future can be looked at with confidence by those who are fond of children. The public wants the best for the children. The influences mentioned earlier of health education, growth in families, and the development of voluntary health insurance will bring better medical care within the reach of more and more families, but it is important for us to know that pediatrics is in transition from a disease-oriented specialty to a child-rearing specialty.

Conclusions

In spite of the health education of the public carried on for so many years, there is still a disheartening apathy on the part of many with regard to maintaining their own health. We have seen evidence of this apathy in regard to adult acceptance of the poliomyelitis vaccine, in the reluctance of communities to adopt fluoridation, and in the failure of so many adults to avail themselves of health examinations even when they are readily available. What can be more challenging and rewarding than to develop for the adult segment of our population the same interest in caring for their own health as many now have for their children's health? More and more young people are reaching maturity with some appreciation of what a physician can offer through health supervision. The pediatrician has developed and is continuing to develop a market, so to speak, for health supervision at all ages.

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SERUM TRANSAMINASE ACTIVITY IN NEONATAL PERIOD

VALUABLE AID IN DIFFERENTIAL DIAGNOSIS OF JAUNDICE IN THE NEWBORN INFANT

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Clinical and laboratory data have been obtained showing that the differential diagnosis of neonatal icterus is facilitated by serial measurements of transaminase activity of the serum. In 63 normal newborn infants the glutamic oxalacetic transaminase (GO-T) activity levels ranged from 13 to 120 units; for glutamic pyruvic transaminase (GP-T) the range was 12 to 90 units. In infants with neonatal icterus classified as physiological, transaminase activity remained within the normal range, and no correlation was found between the intensity of the icterus and the transaminase activity. Data from 15 infants (including previously published data on nine), with jaundice due to pathological conditions, indicate that characteristic patterns of enzyme activity appear for each of the varied causes of neonatal icterus. In infants with extrahepatic infection and usually in those with hemolytic conditions the enzyme activity remains within the normal range. However, in an infant with a fulminant form of hemolytic disease of the newborn, GO-T activity alone was transiently elevated to about 300 units. In all cases of biliary obstruction the GO-T and GP-T values rose gradually to levels below 800 units. In an infant with very mild acute hepatitis (homologous serum) the enzyme activity rose sharply during the stage of increasing hyperbilirubinemia to well above 800 units (to 1140 units) and fell sharply thereafter. Serial determinations of serum transaminase activity in cases of neonatal icterus, therefore, aid in recognition of patients requiring surgery.

Icterus of unknown origin in the neonatal period frequently presents a difficult problem in diagnosis. During this time of life the history, physical examination, and available laboratory techniques are often of limited value in providing adequate clues from which a correct etiological diagnosis may be made. This is in contrast to the situation in adults, in whom these same procedures usually supply the necessary data for establishing the cause of the jaundice. Thus a diagnostic tool which may help to clarify the clinical picture would be of material aid to the clinician faced with the problem of differential diagnosis of jaundice in the newborn infant.

Transaminases are enzymes which catalyze reactions involving the transfer of an amino group from one amino acid to a keto acid with the formation of a new amino acid. An increase in transaminase activity in the serum occurs in the presence of hepatocellular injury or necrosis, presumably as a result of liberation of the enzymes from the damaged cells. Since measurement of transaminase activity has proved of value in the diagnosis of liver disease in adults, it was felt that application of this technique to the newborn infant with jaundice could be a diagnostic aid.[1] Our preliminary observations in previous studies[2] indicated that serial measurements of activity of glutamic oxalacetic transaminase (GO-T) and of glutamic pyruvic transaminase (GP-T) in the serum offered promise of being of considerable assistance in defining the cause of icterus during the neonatal period. In the present report, observations are presented of transaminase activity in the serum in an additional group of infants in the neonatal period with jaundice due to pathological conditions. These findings are summarized with those of the previous investigations. From these combined studies, distinctive patterns of enzyme activity appear to emerge as characteristic of the varied causes of neonatal icterus, with consequent significant prognostic and diagnostic implications.

Method and Case Material

In these investigations serums for measuring GO-T and GP-T activity were obtained from normal term infants from the newborn infants' nursery of Bellevue Hospital and also from infants with neonatal jaundice associated with pathological conditions from the Children's Medical Service of the same hospital. The group studied previously included 63 normal newborn term infants, to establish normal neonatal physiological levels of serum enzyme activity, and 9 infants with jaundice of pathological origin.[2] This latter group consisted of seven infants with hemolytic disease of the newborn

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due to Rh incompatibility, one infant with inspissated bile syndrome, and one infant with extrahepatic biliary obstruction (agenesis of common bile duct). To this group are now being added five more infants with neonatal icterus due to pathological states and these will be reported in detail. These cases are comprised of two infants with hemolytic disease of the newborn resulting from ABO incompatibility, one infant with jaundice associated with extrahepatic infection, one infant with agenesis of the entire biliary tract, and one infant with acute hepatitis (presumably homologous serum type).

All infants with jaundice of pathological origin were less than 2 months of age at the time of onset of observations, with a single exception. This was a premature infant who was born after a 28-week gestation with a birth weight of 1,340 Gm. (3 lb.) and who developed acute hepatitis at 5½ months of age.

Serial measurements of GO-T and GP-T activity in serum were obtained at frequent intervals in the infants with icterus caused by pathological conditions, to obtain clear pictures of the course of enzymatic activity in the various disease states associated with neonatal jaundice. The spectrophotometric method was employed in determinations of GO-T and GP-T activity in the serum, and results are expressed as units per milliliter of serum per minute.[3] In normal adults using this method, the range of serum enzyme activity for GO-T varies from 8 to 40 units and that for GP-T varies from 5 to 35 units. Enzyme activity exceeding these values is considered indicative of a pathological condition.

Results

Normal Newborn Infants.—In a group of 63 newborn term infants, it was found that the normal range of activity for GO-T and GP-T in serum was greater during the first week of life than that for adults.[2] The range of activity for GO-T was found to be 13 to 120 units. That for GP-T was 12 to 90 units. The activity of the enzymes was generally lower in cord blood than at any other time in the early neonatal period. These findings indicate that levels of activity up to 120 units for GO-T and 90 units for GP-T may be considered normal for the early neonatal period.

Physiologic Hyperbilirubinemia in Newborn Infants.—In the group of 63 normal newborn infants discussed above, it was found that the degree of hyperbilirubinemia, which is so common for this time of life, did not affect the level of serum GO-T and GP-T activity. No relationship could be demonstrated to exist between the degree of hyperbilirubinemia and the level of activity of either serum enzyme, despite indirect serum bilirubin levels of 10 to 15 mg. per 100 ml. in 13 infants, and 15 to 33 mg. per 100 ml. in 6 infants.

Neonatal Icterus Secondary to Extrahepatic Infection.—The course of enzyme activity in neonatal icterus due to infection was studied in a 36-day-old infant.

Case 1 (table 1).—An infant 36 days of age was admitted to the hospital with icterus of moderate degree, which was noted to have been present for three days. His weight at birth was 2,970 Gm. (6 lb. 9 oz.). The infant was acutely ill. The liver was palpable 2.5 cm. below the costal margin. The stools were yellow. Urinalysis revealed 3+ albumin and a trace of bile. Urobilinogen was present. A catheterized urine specimen showed numerous white blood cells with many clumps, and gram-negative bacilli appeared on a smear. Culture of the urine, after the institution of antibiotic therapy, was negative, and the sediment showed no cellular inclusion bodies. Penicillin, streptomycin, and chloramphenicol (Chloromycetin) caused the urine to clear within a few days. The hemoglobin level was 12.9 Gm. per 100 cc. The white blood cell count was markedly elevated (28,500 per cubic millimeter), with 70% polymorphonuclear leukocytes and 9% band cells. Hematological studies yielded normal results. The alkaline phosphatase activity was 11.4 Bodansky units per 100 cc. The liver flocculation tests were normal. The Mazzini test was negative. The blood nonprotein nitrogen level was 68 mg. per 100 ml. The intravenous pyelogram was normal.

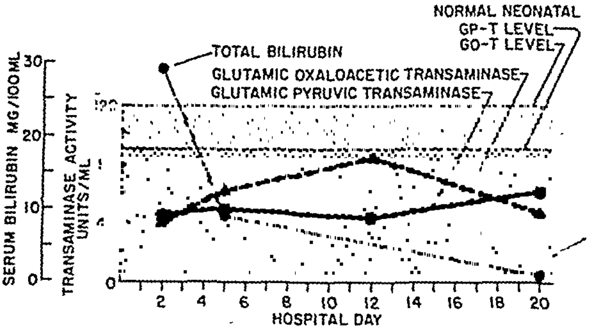

Fig. 1 (case 1).—Glutamic oxalacetic transaminase (GO-T) and glutamic pyruvic transaminase (GP-T) levels in serum of 36-day-old infant with jaundice associated with extrahepatic infection (pyelonephritis).

There was rapid improvement with antibiotic therapy. The jaundice disappeared by the sixth day, with a decrease of total serum bilirubin from an initial level of 29 mg. per 100 ml. (of which 20.8 mg. was the direct type) to 9.1 mg. per 100 ml. within four days. The pyuria cleared by the 11th day. The clinical course and results of serial determinations of GO-T and GP-T are recorded in table 1 and figure 1. It will be noted that the activity of GO-T and GP-T in serum remained normal throughout the course.

It appears, then, that neonatal jaundice due to infection is not accompanied by an increase in activity of either serum GO-T or GP-T when there is no associated liver disease.

Neonatal Jaundice due to Hemolytic Conditions.—Seven infants with hemolytic disease of the newborn due to Rh incompatibility were studied. It was found that in mild to severe manifestations of the disease both GO-T and GP-T activity in serum remained at normal neonatal levels. However, in a severe fulminating form of the disease the activity of GO-T was elevated up to about 300 units for several days, whereas the GP-T activity remained at the normal neonatal physiologic level throughout the active hemolytic phase. The temporary elevation of GO-T activity is not unexpected in view of the high concentration of the enzyme in red corpuscles.

TABLE 1.—*Serum Transaminase Activity in Thirty-six Day-Old Infant with Jaundice Associated with Infection (Pyelonephritis)*

Hospital Day	Serum Bilirubin Level, Mg./100 Ml.			Serum Transaminase Level, Units/Ml.	
	Direct	Indirect	Total	GO-T*	GP-T†
2	20.8	8.2	29.0	44	40
5	6.4	2.7	9.1	48	61
12				44	84
20			0.9	61	16

* Glutamic oxalacetic transaminase.
† Glutamic pyruvic transaminase.

In the present investigation two infants with hemolytic disease of the newborn due to A-B-O incompatibility were studied, and their courses are summarized in table 2.

CASE 2 (table 2).—This infant's mother was a primipara whose blood type was O, Rh positive. Her undiluted serum hemolyzed A but not A_2 cells. (These findings are typical for A-B-O hemolytic disease.) The infant's weight at birth was 3,195 Gm. (7 lb. 1.5 oz.). The blood type was A, Rh positive. Jaundice was noted within the first 24 hours after birth and increased in severity. The infant was markedly icteric at 3½ days of age. The hemoglobin level dropped to 11.3 Gm. per 100 ml. when the infant was 2½ days old, and the total serum bilirubin level rose to 39.6 mg. per 100 ml. when the infant was 3½ days old. No transfusions were given. The infant was observed closely for the development of the inspissated bile syndrome, because of the severity of jaundice and degree of hyperbilirubinemia. However, this syndrome did not materialize, and the jaundice diminished rapidly. There was mild hepatomegaly. The Coombs test was negative. The stools were yellow, and there was no bile in the urine. The infant was discharged in good condition with no transfusion.

CASE 3 (table 2).—The mother of this infant had had one previous pregnancy, which was normal. Her blood type was O, Rh positive. The infant weighed 3,060 Gm. (6 lb. 12 oz.) at birth. Its blood type was A, Rh positive. At 28 hours of age the infant had marked jaundice. The hemoglobin level dropped from an initial concentration of 16.5 Gm. to 8.6 Gm. per 100 ml. and the indirect serum bilirubin level rose to 29 mg. per 100 ml. One exchange transfusion was performed. The jaundice subsided after several days. A study of serums of the mother and baby revealed strong A sensitization in the mother and typical findings of A-B-O hemolytic disease in the infant. The infant was discharged in good condition.

The activity of serum GO-T and GP-T remained within the physiologic neonatal range in both of these cases, despite the decrease in hemoglobin concentration and elevation of serum bilirubin level.

From the findings in the present and previous studies it would be anticipated that in hemolytic conditions both GO-T and GP-T activity in serum usually remain within the normal neonatal range. However, a temporary increase in GO-T activity of up to about 300 units may occur in a fulminating form of hemolytic disease.

Inspissated Bile Syndrome.—Inspissated bile syndrome is characterized by the onset during the first few days of life of (1) jaundice, (2) biliary obstruction with acholic stools, presence of bile, and absence of urobilinogen in urine, (3) increased indirect and increasing direct serum bilirubin level, and (4) negative flocculation tests.[4] Biliary obstruction persists for a variable time, from three weeks to several months, and then usually clears spontaneously. Occasionally, irreversible hepatocellular damage occurs, leading to cirrhosis. The etiology is obscure, but factors which may be involved include excessive serum bilirubin pigment and hepatic immaturity for handling the serum bilirubin load, resulting in stasis, inspissation of biliary secretions, and biliary obstruction. Small size of biliary ducts and dehydration may also play contributory roles. In one series of 53 cases of inspissated bile syndrome reported by others, 23 were associated with hemolytic disease of the newborn and 30 were of unknown etiology.[4] Other investigators found 7 cases of inspissated bile syndrome in a group of 83 infants with hemolytic disease of the newborn.[5] Cholangitis and early congenital cirrhosis have also been suggested as possible etiological factors.[4] In this syndrome surgery is contraindicated. In contrast, in extrahepatic biliary obstruction caused by atresia or agenesis of bile ducts the symptoms and signs of biliary obstruction do not resolve spontaneously, and surgical exploration is mandatory.

TABLE 2.—*Serum Transaminase Activity in Two Infants with Hemolytic Disease of the Newborn Due to A-B-O Incompatibility*

Case	Age, Hr.	Serum Bilirubin Level, Mg./100 Ml.			Hemoglobin Level Gm./100 Ml.	Serum Transaminase Level, Units/Ml.	
		Direct	Indirect	Total		GO-T*	GP-T†
1	24		18.0		12.0		
	30		19.5		12.3		
	36		21.0		12.0		
	52		25.8		12.1	46	36
	63		26.8		11.3		
	3 days		29.0				
	3½ days	8.9	30.7	39.6		29	18
	5½ days	10.4	23.4	33.8			
	7½ days	9.1	14.4	23.5		43	17
2	28		22		16.5		
	36		29		13.2	120	42
	38‡		...		...		
	39		...		...	80	30
	40		12		9.9	44	44
	60		28		8.6		
	3½ days		24			48	24
	4½ days		9		9.6		

* Glutamic oxalacetic transaminase.
† Glutamic pyruvic transaminase.
‡ Exchange transfusion started at 38 hours of age and ended at 40 hours.

The enzymatic course in a case of inspissated bile syndrome previously reported [2d] incompletely is now completely summarized in figure 2. Biliary obstruction developed in an infant with fulminating hemolytic disease of the newborn at 6 days of age. It was manifested by increasing icterus, development of acholic clay-colored stools, rise in direct bilirubin level, presence of bile in the urine, and negative flocculation tests. The total serum bilirubin level rose to 40 mg. per 100 ml. After about four weeks the obstruction was relieved spontaneously. Figure 2 graphically portrays the alterations in the biliary patency, as they are reflected in the activity of the serum enzymes. Serum GO-T activity in cord blood was initially increased to 332 units. Then the serum enzyme activity decreased progressively thereafter, and reached the normal neonatal physiologic range at about 3 days of age. Serum GP-T activity was normal at birth. With the onset of biliary obstruction at 6 days of age there was an initial rise in GO-T activity, followed shortly by a rise in GP-T activity. Thereafter, the activity of both serum enzymes rose slowly and reached the moderate elevations of 390 units for GO-T and 450 units for GP-T three and one-half weeks after the onset of biliary obstruction. Then, with clearing of the obstruction, the activity of both serum enzymes decreased slowly. Normal neonatal levels for both enzymes were reached after another six weeks.

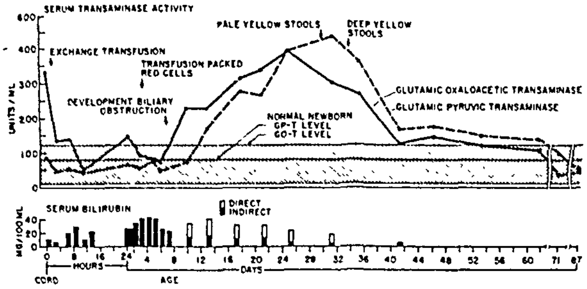

Fig. 2.—Glutamic oxalacetic transaminase (GO-T) and glutamic pyruvic transaminase (GP-T) levels in serum of a newborn infant with acute fulminating hemolytic disease of the newborn, complicated by the development of inspissated bile syndrome at 1 week of age.

Thus, the enzymatic picture in the inspissated bile syndrome appears to be characterized by a progressive sustained increase to moderately high levels of serum enzyme activity for both GO-T and GP-T. This increase begins in the very early neonatal period, simultaneously with the onset of biliary obstruction. With the relief of the obstruction the activity of the serum enzymes decreases sharply.

Neonatal Extrahepatic Biliary Obstruction.—The pattern of serum enzyme activity in a one-month-old infant (case 4) with extrahepatic biliary obstruction, which was found to be due to agenesis of the common bile duct, was documented in the previous report.[2d]

CASE 4.—A one-month-old infant was admitted to the hospital with a history of jaundice of unknown duration. Clinical and laboratory evidence of biliary obstruction were present. The direct serum bilirubin level rose to 24 mg. per 100 ml. Frequent serial determinations over a four-week period of time indicated a progressive gradual increase in serum enzyme activity from initial levels of 112 units to 630 units for GO-T and from 128 units to 720 units for GP-T. Thereafter, the activity of both enzymes leveled off over the following four weeks at a lower range below 500 units, which persisted until surgical exploration when the infant was about 3 months of age. At operation the common bile duct was found to be entirely absent although the hepatic ducts were intact. The gallbladder was distended with bile, and there was evidence of biliary cirrhosis. A choledochoenterostomy was performed, but the infant died one week postoperatively of an ascending cholangitis.

CASE 5 (table 3).—This infant, with extrahepatic biliary obstruction, was admitted at 50 days of age with a history of increasing jaundice from birth and clay-colored stools of two weeks' duration. The child's weight at birth was 3,600 Gm. (8 lb.). Prenatal and postnatal courses were uneventful. The stools had been yellow until two weeks before admission. The urine had always been dark yellow. The mother had been hospitalized one and one-half years previously for one week because of jaundice. Her blood type was A, Rh positive.

Physical examination revealed moderate jaundice of the skin and sclerae. The weight of the child was 4,200 Gm. (9 lb. 5 oz.). The liver was palpable 4 cm. below the costal margin.

There were signs of biliary obstruction: The stools were acholic, with no urobilin, and bile was present in the urine and urobilinogen absent. There were no cellular inclusion bodies in the urinary sediment. Coombs' test was negative. The blood type was O, Rh positive. Hemotological studies yielded normal results. The Mazzini test was negative, and liver flocculation tests yielded normal results. The alkaline phosphatase activity was 13.5 Bodansky units per 100 cc.

The jaundice and signs of biliary obstruction continued until surgical exploration on the 28th hospital day. At operation, agenesis of the entire extrahepatic biliary tract and gallbladder was found, and no surgical correction was possible. Biopsy of the liver revealed biliary cirrhosis. The postoperative clinical course was favorable, despite persistence of jaundice and signs of biliary obstruction. The infant was discharged from the hospital on the 56th day in good general condition and was referred to the clinic for further observation.

In this infant with extrahepatic biliary obstruction the course and results of serial measurement of enzyme activity are recorded in table 3 and figure 3.

TABLE 3.—*Serum Transaminase Activity in Fifty-Day-Old Infant with Jaundice Due to Agenesis of Entire Extrahepatic Biliary Tract*

Hospital Day*	Serum Bilirubin Level, Mg./100 Ml.			Serum Transaminase Level, Units/Ml.	
	Direct	Indirect	Total	GO-T†	GP-T‡
2	3.7	7.7	11.4	276	200
7	11.4	2.7	14.1	...	...
10	...	...	...	248	200
14	11.4	2.8	14.2	360	200
18	9.5	3.2	12.7	420	260
21	9.1	0.9	10.0	510	280
25	11.4	1.3	12.7	305	156
43	11.8	4.6	16.4	520	223
53	11.8	2.3	14.1	420	232

* Surgical exploration done on 28th hospital day.
† Glutamic oxalacetic transaminase.
‡ Glutamic pyruvic transaminase.

It will be noted that the initial levels were mildly elevated to 276 units for GO-T and 200 units for GP-T. For the next three and one-half weeks the enzyme activity increased slowly to 510 units for GO-T and 280 units for GP-T. The activity then decreased to 305 units and 156 units for GO-T and GP-T respectively. After the operation the enzyme activity varied from 520 to 420 units for GO-T, and 223 to 232 units for GP-T.

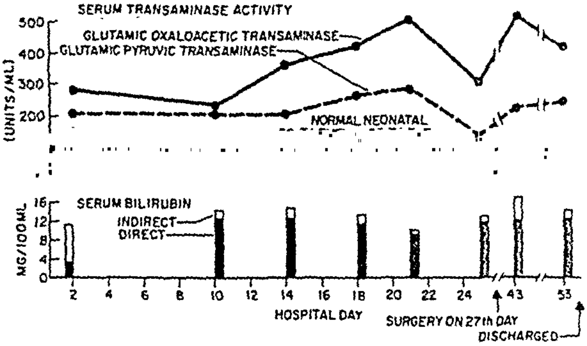

Fig. 3 (case 5).—Glutamic oxalacetic transaminase (GO-T) and glutamic pyruvic transaminase (GP-T) levels in serum of a 50-day-old infant with jaundice caused by agenesis of entire extrahepatic biliary tract.

Of striking interest is the similarity in the pattern of enzyme activity in these two cases of extrahepatic biliary obstruction. There was an initial mild increase in enzyme activity in both infants. This was followed by a progressive rise in the first case to levels of 630 units and 720 units for GO-T and GP-T, respectively, and in the second case to 510 units and 280 units for the two enzymes respectively. Thereafter, in both infants prior to surgical exploration there was a leveling off of the enzyme activity at a lower, although still increased, range. Although the significance of this "leveling off" process is not entirely clear, it may represent a decreased rate of active hepatocellular damage after an initial maximum is reached.

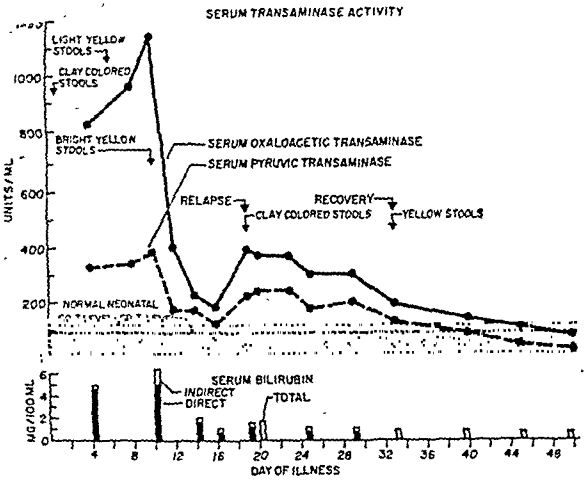

Fig. 4 (case 6).—Glutamic oxalacetic transaminase (GO-T) and glutamic pyruvic transaminase (GP-T) levels in serum of a 5½-month-old premature infant with acute hepatitis (presumably homologous serum type).

Jaundice in Infancy Associated with Acute Hepatitis.—The pattern of enzyme activity in acute hepatitis in early infancy was studied in an infant who was born prematurely. The results are recorded in table 4 and figure 4.

Case 6 (table 4).—This infant was born after 28 weeks' gestation. The weight at birth was 1,340 Gm. (3 lb.), and it decreased to 1,160 Gm. (2 lb. 9 oz.) within one week. The mother (gravida 3, para 3) was a drug addict (heroin). She denied any previous history of jaundice. The infant progressed well but remained at the hospital from birth because of socioeconomic factors. The blood was studied on several occasions during this period. At 5½ months of age, although in terms of maturity the infant would be considered to be the equivalent of 2½ months of age, he weighed 4,080 Gm. (9 lb. 1 oz.). At this time a sample of serum obtained for routine study was noted to be icteric, and analysis indicated a bilirubin concentration of 5 mg. per 100 ml. Low-grade fever had been present for three days previously and had been attributed to a mild pharyngitis.

Examination revealed questionable scleral icterus. The liver was palpable 1.5 cm. below the costal margin. The stools were clay-colored over the next two days. Bile was present in the urine (1+), as was urobilinogen in a 1:2 dilution. Galactose was absent, and there were no cellular inclusion bodies in the sediment. A diagnosis of hepatitis (probably homologous serum type) was made.

Table 4.—*Serum Transaminase Activity in a Five and One-Half-Month-Old Premature Infant with Acute Hepatitis*

	Serum Bilirubin Level, Mg./100 Ml.			Serum Transaminase Level, Units/Ml.	
Day of Illness	Direct	Indirect	Total	GO-T*	GP-T†
4	1.6	0.4	5.0	824	328
8				960	336
10	5.0	1.4	6.4	1,140	380
12				400	168
14	1.5	0.5	2.0	224	168
16	0.4	0.7	1.1	180	120
19	1.0	0.3	1.3	390	220
20			1.5	372	240
23				376	240
25	0.5	0.4	0.9	300	175
29	0.6	0.4	1.0	300	200
33			0.6	192	128
40			0.6	140	92
45			0.5	108	41

* Glutamic oxalacetic transaminase.
† Glutamic pyruvic transaminase.

The total serum bilirubin level rose to 6.4 mg. per 100 ml. over the next few days and then dropped rapidly. Complete investigation for other etiological agents was negative. The cephalin flocculation level was 0. The thymol turbidity level was 0-1.6 units. The gamma globulin level was 0-1 Kunkel units. The alkaline phosphatase activity was 2.7 Bodansky units. The level of blood cholesterol was 147 mg. and of cholesterol esters 125 mg. per 100 cc.; the blood nonprotein nitrogen level was 44 mg. per 100 ml., and the albumin-globulin ratio was 3.7/2.1. The Mazzini test was negative. The blood type was B, Rh positive. The Coombs test and heterophil antibody test were negative. The blood culture was negative. The hemoglobin level was 11 Gm. per 100 cc. The hematological studies were normal, as were the mother's liver function tests. The dye and complement fixation tests were negative for toxoplasmosis. Roentgenologic studies failed to reveal any intracranial calcifications.

The infant was not acutely ill at any time and was asymptomatic except for mild anorexia and occasional emesis for several days. The questionable icterus disappeared by the eighth day, and the stools were light yellow; bile was absent from the urine. The stools were bright yellow by the 12th day. The clinical manifestations were of such mild degree as to have most probably escaped detection even in a hospital, had it not been for a routine sampling of blood.

On the 19th day after the onset of illness a temporary relapse occurred, with the development of fever and clay-colored stools. A low-grade febrile course persisted for about seven days, with the temperature ranging from 100 to 102 F (37.8 to 38.9 C), and clay-colored stools continued for about two weeks, with urobilin present in diminished concentration. Total serum bilirubin levels did not rise above 1.5 mg. per 100 ml. The presence of urobilin in the stool, as well as the presence of urobilinogen and absence of bile in the urine, indicated that the biliary obstruction was incomplete at this time. After this temporary relapse the infant made an uneventful recovery.

With this mild degree of involvement, the pattern of serum enzyme activity would appear to assume striking significance. The initial level for GO-T activity was 824 units, and that for GP-T was 328 units. Thereafter the enzyme activity increased to peaks of 1,140 units for GO-T and 380 units for GP-T and then dropped sharply and rapidly. A temporary sustained increase in activity in both serum enzymes occurred simultaneously with the onset of the relapse. This increased activity continued for the duration of the relapse and then decreased rapidly. It will be noted that, while GP-T activity was never more than only moderately elevated, the activity for GO-T, even at the onset of the illness, was increased beyond levels obtained for any other cause of neonatal icterus. No explanation can be offered at this time for the considerably lower range of activity for GP-T than that for GO-T.

The findings suggest that even in the mildest cases of hepatitis a sharp increase in enzyme activity in serum for either (or both) GO-T and GP-T beyond 800 units, followed by a rapid fall, may be observed. The possibility that even mild forms of acute hepatitis may be differentiated from neonatal jaundice of other origin by this high level of serum enzyme activity is of diagnostic importance. Investigations in adults and experimental animals suggest that more severe forms of hepatitis would be expected to demonstrate higher levels of serum GO-T and GP-T activity than those found in this infant.[6]

Comment

The patterns of serum enzyme activity for both GO-T and GP-T that evolve from these studies appear to have significant diagnostic implications in neonatal icterus, a syndrome in which the usual diagnostic procedures may be of no help and may actually be misleading.

The experience in several cases described above illustrates some of the problems involved in obtaining helpful clues from the usual diagnostic procedures. The cases of the two infants with extrahepatic biliary obstruction (cases 4 and 5) demonstrate that historical data based on inadequate and uncritical observations of parents often yield inaccurate information. In the case of the infant with agenesis of the common bile duct (case 4), the mother maintained that the stools were bright yellow right up to the time of admission to the hospital. Yet, during the period of observation at the hospital the stools were always acholic and almost white. Similarly, in the case of the infant with agenesis of the entire extrahepatic biliary tract (case 5), the mother insisted that the stools did not become clay-colored until two weeks prior to admission. The findings on physical examination were likewise often noncontributory. Finally, the lack of help from the usual laboratory techniques is demonstrated in the infant with acute hepatitis (case 6), in whom the flocculation tests were all normal. These latter results are of course the usual findings in acute neonatal hepatitis.[7] Determinations of serum alkaline phosphatase levels were of little aid in clarifying the clinical pictures. Yet the importance of proper diagnosis and therapy is highlighted by the experience reported in a group of 30 infants with inspissated bile syndrome of unknown etiology.[4] All 4 of the infants in this group who died of related causes were among the 20 patients subjected to surgical exploration.

The results of these studies suggest that the activity of serum GO-T and GP-T follows a definite pattern for each of the varied etiological factors involved in neonatal jaundice, and thus may be of value in diagnosis. In the early neonatal phase levels of activity up to 120 units for GO-T and 90 units for GP-T may be considered as being physiologic, in contrast to an upper normal value of 40 units for both enzymes in adults. In physiologic hyperbilirubinemia enzyme activity is not altered from the normal neonatal range. In neonatal jaundice associated with infection (in the absence of intrinsic liver pathology), normal neonatal physiologic levels of enzyme activity are apparently maintained. In neonatal jaundice due to hemolytic states the activity of GO-T and GP-T are usually within the physiologic neonatal levels. However, in an acute fulminating form of hemolysis the activity of only GO-T may be temporarily increased to levels of about 300 units. In biliary obstruction, whether it be the inspissated bile syndrome or the extrahepatic type (atresia or agenesis of bile ducts), the course of enzyme activity is characterized by a slow, progressive, sustained increase which will reach a peak below 800 units. It may then level off to a lower range of activity. The limited studies in this group of infants further suggest that the two types of obstruction may possibly be differentiated from each other by the fact that in the inspissated bile syndrome the rise in activity apparently begins abruptly early in the neonatal period with the onset of obstruction, whereas in the extrahepatic type the progressive increase appears to be initiated later in the neonatal period. This difference in enzyme activity between the inspissated bile syndrome and congenital extrahepatic biliary obstruction may be accounted for by the probability that the more sudden insult to the liver in the former may result in a more rapid liberation of enzyme into the blood stream. In acute hepatitis, it appears that the enzyme pattern is characterized by a rapid increase in activity during the stage of increasing hyperbilirubinemia and a sharp fall thereafter. A similar enzymatic course is demonstrable in adults with acute hepatitis, homologous serum or infectious type.[8] Furthermore, on the basis of our limited experience to date, the peak of activity reached by one or both enzymes, even in a very mild form of neonatal hepatitis, appears to be higher than in neonatal icterus of any other cause, namely, above 800 units.

TABLE 5.—*Serum Glutamic Oxalacetic Transaminase (GO-T) and Serum Glutamic Pyruvic Transaminase (GP-T) Activity in a Group of Infants with Neonatal Jaundice due to Physiological and Pathological Conditions*

	GO-T, Units/Ml. Serum	GP-T, Units/Ml. Serum
Normal adults	5-45	5-45
Normal newborn infants	5-120	5-90
Physiological jaundice	5-120	5-90
Infection (extrahepatic)	5-120	5-90
Hemolytic states		
Mild to severe	5-120	5-90
Very severe	Temporary rise up to about 300	5-90
Biliary obstruction		
Inspissated bile syndrome	Progressive slow increase to 300-800, usually initiated early in neonatal period with onset of obstruction	Similar to GO-T
Extrahepatic (agenesis, atresia bile ducts)	Progressive slow increase to 300-800, usually initiated later in neonatal period	Similar to GO-T
Acute neonatal hepatitis	Rapid increase to levels above 800 in stage of increasing hyperbilirubinemia; rapid decrease in recovery phase	Increased activity to levels above 300 in mild cases; higher levels anticipated in severer cases

An interesting illustration of the practical value of using measurements of serum enzyme activity in diagnosis in neonatal icterus was demonstrated in the infant with agenesis of the entire extrahepatic biliary tract (case 5). There was a maternal history of jaundice one and one-half years previously and a history of yellow stools in the infant until two weeks prior to admission. The serum bilirubin concentration was variable. Despite these misleading historical and laboratory data, and in the face of considerable feeling to the contrary and in favor of a diagnosis of acute hepatitis, the diagnosis of extrahepatic biliary obstruction was made with a degree of assurance from the results of serial determinations of serum enzyme activity.

Of interest is the comparison of enzyme patterns in pathological conditions in infants with those of adults. In general the enzymatic courses in biliary obstruction and in acute hepatitis are similar for both age groups. However, the peak values reached for each of the two groups differ in the two diseases. The peak value in the infants studied was found to be below 800 units in biliary obstruction and above 800 units in acute hepatitis, whereas in adults peak values remained below 400 units in biliary obstruction, and values above 400 units are usually associated with hepatitis.[8]

It may be noted that in the infant with acute hepatitis GP-T activity lagged far behind GO-T activity, although the patterns of activity for the two enzymes were similar. The peak for GP-T was 380 units; that for GO-T was 1140 units. This differs from the pattern in this disease in adults, in whom GP-T actually usually exceeds that of GO-T (unless the plasma protein albumin/globulin ratio is reversed).[9] No adequate explanation can be advanced for this significant difference in activity for the two enzymes in this infant. Differences in plasma proteins in early infancy, from those in adults, may possibly be important contributory factors.

A tabulation of the expected patterns of enzyme activity in neonatal jaundice due to the various conditions studied is recorded in table 5. The findings in this report suggest that the technique of serial measurement of serum GO-T and GP-T activity may be of important practical therapeutic significance in neonatal icterus of unknown origin. By facilitating earlier diagnostic conclusions it may be possible to permit operative exploration in surgical types of neonatal biliary obstruction prior to the development of appreciable irreversible hepatocellular damage. By the same token it may help prevent unnecessary surgical intervention in medical forms of neonatal jaundice.

The patients studied are limited in number. Further studies are required in order to test these generalizations.

Summary

The results of this investigation appear to indicate that measurements of activity of serum transaminases are of value in the etiological diagnosis in neonatal icterus.

From studies in normal newborn term infants in the first week of life, it was found that levels of activity up to about 120 units (per milliliter of serum per minute) for serum glutamic-oxalacetic transaminase (GO-T), and levels up to about 90 units for serum glutamic-pyruvic transaminase (GP-T), may be considered physiologic for the early neonatal period. This is in contrast to an upper normal level of 40 and 35 units for the two enzymes, respectively, in adults.

In physiologic jaundice of the newborn the degree of hyperbilirubinemia did not affect the activity of either enzyme.

From the study of patients with neonatal icterus caused by pathological conditions distinctive patterns of enzyme activity emerged with consequent diagnostic and prognostic implications.

In neonatal jaundice associated with extrahepatic infection normal physiologic levels of enzyme activity were maintained.

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In neonatal icterus due to hemolytic conditions, GO-T and GP-T activity usually remained within the physiologic neonatal range. However, in an acute fulminating form of hemolysis the activity of GO-T alone was temporarily increased up to levels of about 300 units.

In neonatal biliary obstruction, both inspissated bile syndrome and extrahepatic, there was a slow progressive increase in serum enzyme activity which reached a peak below 800 units, and which then leveled off at a lower range. In the inspissated bile syndrome the progressive increase in enzyme activity began more abruptly in the early neonatal period. In the extrahepatic type (atresia or agenesis of bile ducts) the increase in activity began later in the neonatal period.

In icterus due to acute hepatitis the enzymatic pattern was characterized by a rapid increase in serum enzyme activity during the stage of increasing hyperbilirubinemia, and a sharp fall thereafter. The peak activity for one or both enzymes was higher, namely above 800 units, than that in neonatal icterus of any other cause.

These findings appear to indicate that, in addition to its diagnostic importance, the information derived from serial measurements of serum transaminase activity may serve as a guide to therapy. Thus it may permit early operative intervention in surgical types of neonatal biliary obstruction, and, by the same token, it may help avoid unnecessary surgery in medical forms of neonatal jaundice.

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MEPROBAMATE FOR DERMATOSES.—The most favorable results from meprobamate occurred in the cases of disseminated neurodermatitis. An excellent-to-good effect in all types of cases occurred in nearly 50%. This favorable outcome could be explained by the fact that the drug was only prescribed when tension was a predominant symptom. The reason for the good results in the therapy of seborrheic dermatitis and psoriasis is still unknown to us. Meprobamate alone was found to have very little effect on relief of pruritus and required the addition of antipruritics such as promethazine hydrochloride or acetylsalicylic acid to produce satisfactory results. It was not as efficient as the anticholinergic drugs in reducing hyperhidrosis. Allergic reactions were encountered in nearly 4% of the patients treated, and undesirable side-effects occurred in 10%. . . . Meprobamate . . . sometimes has a dramatic and favorable influence on an anxiety state. . . . It should be prescribed for the irritable, anxious, and tense patients, especially those who have reacted unfavorably to the generally used sedatives.—F. T. Becker, M.D.; M. G. Fredericks, M.D.†; J. F. Schmid, M.D., and J. L. Tuura, M.D., An Evaluation of Meprobamate in the Management of Selected Dermatoses, *A. M. A. Archives of Dermatology*, April, 1958.

BRAIN ABSCESS—A STUDY OF FORTY-SEVEN CONSECUTIVE CASES

Frederick W. L. Kerr, M.D., Robert B. King, M.D.
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In most of 47 consecutive patients with proved intraparenchymatous abscesses, the source of infection could be identified either with certainty (72%) or with a reasonable index of suspicion (17%). Headache was by far the commonest complaint, being present in all but six patients. Fever was the next most common symptom. Vomiting occurred in half the patients and nausea in less than one-third. Primary excision of the abscess was considered to be the most satisfactory therapy. The method of treatment used seemed to bear no relation to the development of seizures. Changes in the level of consciousness are emphasized as being of marked prognostic significance.

Despite the widespread use of chemotherapy and antibiotic drugs, the incidence of cerebral abscesses does not appear to have declined to any appreciable degree. Thus, during the period of 1945 to 1956, 47 patients with cerebral abscess were admitted to Barnes Hospital—slightly over four cases per year.

In a 30-year period prior to the advent of antibiotics 142 patients with cerebral abscess were admitted, representing a very slightly higher annual incidence.[1] Jooma and others[2] remarked on this in 1950, and in their clinic there was an actual increase in incidence which they attributed to more patients surviving the phase of acute cerebritis and reaching a stage of encapsulation.

The present review does not cover cases of subdural or epidural abscess nor of spinal cord pyogenic disease. The series consists of 47 consecutive cases of proved intraparenchymatous abscesses. Though the astonishing results reported by Macewen[3] in a series of selected abscesses have yet to be repeated, a review of the literature[4] reveals that with antibiotics and careful surgical technique they [illegible] be closely approximated in unselected series.

The youngest patient in the group was 2 years of age, and the oldest was 67. Surprisingly, almost 50% of the cases were in patients in the first two decades of life, due perhaps to the greater frequency of sinus infections in childhood. In the third, fourth, and fifth decades there was a definite decline in incidence, while in the sixth and seventh there were only two cases each. Of the 47 cases studied, 10 occurred in patients in the first decade of life, 13 in the second, 7 in the third, 8 in the fourth, 5 in the fifth, 2 in the sixth, and 2 in the seventh.

Source and Type of Infection

In most cases the source of infection could be identified either with certainty (72%) or with a reasonable index of suspicion (17%). However, in five cases (about 10%) nothing could be found indicative of a primary site.

Forty of the cases have been classified into categories of direct extension and hematogenous source. In the 26 cases classified under direct extension, the middle ear was the source in 10, paranasal sinuses in 10, and trauma in 6; in the 14 cases classified as being of hematogenic source, the lungs were the source in 7, teeth in 3, osteomyelitis in 1, septic abortion in 1, tonsils (?) in 1, and upper respiratory tract in 1. In two patients with meningitis it was not possible to determine whether the meningitis was the source or the result of the abscess. In five patients the source was undetermined.

Whether all the cases classified under direct extension are truly so is questionable. Thus, though in many instances the route of infection is clearly recognized at operation, in other cases it is difficult to identify, and it is possible that, in these, embolization via bridging veins has occurred during coughing and straining, as previously postulated by others.[1c]

Results of culture of the abscess contents and, in some instances, of the wall, were available in 43 of the cases. Organisms were identified in 27 (60%). No significant correlation between the type of organism identified and the degree of encapsulation could be found. The organism was identified as Streptococcus in 15 patients, Staphylococcus in 5, Proteus in 5 (secondary to middle ear infection in 4), Haemophilus influenzae in 1, and Mucor in 1. There was no organism in 12 (therefore presumed sterile), unidentified cocci in 1, and a contaminant (Bacillus subtilis) in 3. No cultures were taken in four.

Due to multiple abscesses in three patients, there were 54 abscesses in the series, of which 48 were supratentorial and 6 infratentorial. In the three patients (all children) with more than one abscess,

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one had four and two had three each. Lung infection was the source in the patient with four abscesses, while in the other two the source was doubtful. There were 21 frontal abscesses, 12 parietal, 11 temporal, 6 cerebellar, and 4 occipital. Multiloculated abscesses occurred in only six patients.

Symptomatology and Diagnostic Methods

Headache was by far the commonest complaint, being present in all but six patients; it was of varying intensity and severe only in the last stages. Fever was the next most common symptom. A preadmission history of fever was obtained in 33 patients; its occurrence was unknown in 6 and apparently had not been present in 8. Admission temperature was normal in 16 patients; it was between 37.5 and 39.0 C (99.5 and 102.2 F) in 28 patients and above 39.0 C in 3.

Vomiting occurred in half the patients and nausea in less than one-third. A history of neurological symptoms other than seizures was obtained in slightly over half the patients. Thus, nine patients had had hemiparesis or hemiplegia, four hemiparesthesia, four cerebellar symptoms, five diplopia, and seven personality changes and irritability. Preadmission seizures were noted in 17 patients, or 36% of the group. As in other reports, frontal lobe abscesses were more prone to produce seizures (six cases). Three parietal, two temporal, and one occipital abscess produced seizures, and, surprisingly, three of six uncomplicated posterior fossa abscesses were responsible for seizures, described as grand mal in two cases and questionable grand mal in one.

The true incidence of meningitis in this series could not be determined. Clinical evidence of meningitis was invalidated by the fact that tentorial and cerebellar pressure cones frequently induced nuchal rigidity, and in the absence of a lumbar puncture conclusions cannot be drawn. Lumbar puncture was performed infrequently preoperatively to avoid precipitating or aggravating a pressure cone. Two cases of frank meningitis were seen, and in other instances mild pleocytosis and elevation of protein level were observed with no abnormality in glucose or chloride level and negative smear and culture in each instance.

In using various diagnostic methods,[5] Tutton[4c] noted that electroencephalographic slow focus activity was invariably present over the lesion in 22 patients with chronic abscess, and he regarded it as a valuable adjunct in the localization of multiple and acute abscesses. In this series electroencephalography was performed in 18 of the patients with supratentorial abscesses and gave a correct localization in 13, an approximate localization in 3, and was nonfocal in 2.

Ventriculography continued to be
liable means of localization; in one i
terior fossa abscess was overlooked;
cases the lesion was correctly localized
during ventriculography, the patient became decerebrate but recovered satisfactorily after immediate surgery.

Pneumoencephalography was used in one patient who died within 30 minutes, en route to the operating room. Postmortem examination revealed a severe bilateral tentorial herniation. Angiography is being used more frequently and may prove to be the procedure of choice in patients with supratentorial lesions, since intracranial pressure relationships are not affected.

Once the diagnosis has been established, early operation must be undertaken. In this center, complete excision of the abscess, regardless of the presence of encapsulation, combined with local and systemic antibiotics has been the method favored. Of the 35 patients so treated, 30 had a satisfactory recovery despite the fact that 8 were comatose at the time of operation. Of the five patients who died, four died as a result of severe brain stem pressure; the fifth, who had an abscess due to Mucor, died in peripheral vascular collapse.

Results

Classification of Abscesses.—On the basis of operative findings, the abscesses were classified as well-encapsulated thick-walled lesions, thin-walled lesions, and unencapsulated cerebritis. The best results were obtained in the 10 patients with acute cerebritis, among whom only one patient died; aspiration followed by subsequent excision was performed in this patient. Of the 27 patients with the well-encapsulated type of lesion, 8 died. On the surface this would appear to be a strong argument against the method of treatment advocated. However, a closer analysis revealed that, of the eight patients in whom results were fatal, three were treated by aspiration followed after an interval by excision, two died before operation could be done, one was in a terminal state, and two had primary excision. Three of the nine patients with subacute abscesses died; one was treated by excision, one by aspiration, and one was not operated on due to error in interpreting the ventriculograms. In one patient the abscess capsule was not classified.

Bronchogenic abscesses constituted a group apart insofar as prognosis was concerned, since prior to the era of antibiotics the mortality was practically 100%.[6] However, of the four patients in this series only one died, death occurring before operation could be done. Of the remaining three, all made a satisfactory recovery, but one died two and one-half months postoperatively when, while in apparent good health, she went into status epilepticus.

Changes in Level of Consciousness.—Of the greatest importance is an accurate determination of the level of consciousness in those patients suspected of harboring an abscess and frequent re-evaluation in this regard in those who show signs of drowsiness, since the transition from drowsiness to coma and decerebrate rigidity may occur in a matter of hours. The patients were arbitrarily grouped (table 1) according to their degree of consciousness into three categories: alert, drowsy or obtunded, and comatose and/or decerebrate.

TABLE 1.—*Changes in Level of Consciousness in Forty-seven Patients with Brain Abscesses*

Level of Consciousness	Prior to Admission	On Admission	Prior to Surgery	Results: Lived	Results: Died
Alert	21	16	12	12	0
Drowsy or obtunded	23	22	18	15	3
Comatose and/or decerebrate	3	9	17	7	10

It is evident from this that deterioration in consciousness is a symptom of the greatest value in timing operation and is of considerable prognostic import. Thus, of those patients who showed no clouding of consciousness prior to operation 100% survived, whereas 58% of the comatose, decerebrate group died. Among the seven survivors in the latter group there were three who had no subsequent neurological deficit, while two had moderate deficit, one severe deficit, and one is totally incapacitated.

The considerable perilesional edema in these patients is no doubt responsible in great part for deterioration by the well-known sequence of tentorial and/or cerebellar pressure cones, brain stem hemorrhage and anoxia, obstruction of venous and cerebrospinal fluid circulation, and consequent further rise in intracranial pressure.

Postoperative Neurological Deficit.—It has frequently been objected that total excision prior to encapsulation would lead to more severe neurological deficit than would repeated aspiration associated with local and systemic antibiotic therapy and delayed excision if required. Of the 34 patients who recovered, only one was incapacitated; this patient was treated by aspiration followed by delayed excision. Severe neurological deficit occurred in four patients, one treated by aspiration and excision and the remaining three by excision. Eleven patients had mild to moderate deficit, and all had been treated by excision. Of the 18 patients with no neurological residual, 16 had had primary excision and 2 aspiration followed by delayed excision.

Postoperative Epilepsy.—In this report, which covers some patients seen in the past two years, the incidence of seizures cannot be accurately estimated, since epilepsy may develop a number of years postoperatively (14 years, in one instance).[2] To date, 56% of the survivors in this series have had one or more seizures. Since if postoperative seizures are going to occur they usually appear within the first two years[2] after operation, one may assume that this figure will increase only slightly. There is no evidence to suggest that antibiotic therapy has decreased the incidence of seizures in these cases.

An interesting and unexpected feature was noted in this series; seven patients in the first decade of life survived, and none of these have developed epilepsy to date; this is a most unusual feature since in other reports[4c] the incidence has been similar for all age groups. In all succeeding decades the incidence was approximately 50%, with a maximum of six of seven patients developing epilepsy in the fourth decade (5 of 10 survivors who were in the second decade of life, 3 of 5 in the third, and 1 of 4 in the fifth; the one patient in the sixth decade was affected, and the one in the seventh was not). It is possible, as more time passes, that the incidence of seizures in the youngest age group may increase.

That postoperative epilepsy may lead to disastrous results is illustrated by the case of a 42-year-old patient (the one patient in the sixth decade) who developed a right occipital abscess secondary to bronchiectasis. This was treated by aspiration and delayed secondary excision. She had an uneventful postoperative course with a moderate residual hemiparesis. Two and one-half months after discharge she went into grand mal status and died shortly after readmission. No anticonvulsant medication had been given postoperatively, and it was felt that in the older age group routine anticonvulsant therapy should be considered in view of the high incidence of seizures. Electroencephalography may be of value in making a decision and in following these patients in anticipation of changing paroxysmal focal patterns.

The relationship between the location of the abscess and the occurrence of postoperative seizures is illustrated in table 2. About one-half of those patients having abscesses in the frontal and parietal areas can be expected to develop convulsions, a feature which may help to determine which patients should be treated with prophylactic anticonvulsants. These patients, except for one who died in status epilepticus, are under satisfactory medical

TABLE 2.—*Relationship Between Location of Abscess and Incidence of Postoperative Seizures*

Abscess: Type	Abscess: No.	Patients Having Seizures, No.: Grand-Mal	Patients Having Seizures, No.: Focal
Frontal	21	7	3
Parietal	12	1	4
Temporal	11	2	1
Occipital	4	1	...
Cerebellar	6	...	...

control, but two required cortical scar excision before anticonvulsants were effective. There appeared to be no correlation between the type of abscess excised (i. e., well-encapsulated or cerebritis) and the incidence of seizures postoperatively.

The occurrence of preoperative seizures apparently has no bearing on the incidence of postoperative epilepsy. Thus, of the 18 patients with postoperative convulsions, 11 had had no preoperative seizures. Of 12 patients with preoperative seizures, 6 had convulsions postoperatively.

Mortality.—The total mortality for the series was 14 patients, or 29%. This included all patients seen during the period covered by the survey, some of whom were considered to have hopeless cases and others who died prior to operation. Seven of these patients had marked cerebral edema and brain stem hemorrhages at postmortem examination.

Of the remaining seven, one died as a result of herniation of the uncus during pneumoencephalography, one died 24 hours after ventriculography in which a cerebellar abscess was overlooked, one from Proteus septicemia resistant to all antibiotics, another from peripheral vascular collapse with an abscess due to Mucor, two from status epilepticus two days and two and one-half months postoperatively, respectively, and one due to a probable recurrence in which it was felt that a daughter abscess might have been overlooked, though autopsy confirmation could not be obtained.

Of the 44 patients operated on, 34 recovered, giving a mortality of 22%. Fourteen were comatose or decerebrate, and in them the mortality was 50%, whereas in the 30 who were alert, drowsy, or obtunded, the mortality was only 10%.

Comment

Two main methods of treating cerebral abscesses are advocated at this time. One consists in aspiration of the contents with local instillation of antibiotics and thorium dioxide (Thorotrast),[7] leading to decompression and subsequent shriveling of the capsule; if x-ray studies show unsatisfactory progress, craniotomy and excision is then performed.

The other method, introduced by Vincent[8] for the well-encapsulated abscess and subsequently extended by LeBeau,[9] Fincher,[10] Schwartz and Roulhac[11] and Meirowsky and Harsh[12] to cover the more acute varieties, consists in primary excision regardless of the stage of evolution, followed by tight closure without drainage, associated in the past 14 years with local and systemic antibiotics. The latter method has been the method of choice in this center.

The advantages derived from this method are an immediate and lasting decompression on excision of the abscess and the removal of the stimulus to edema with consequent relief of brain stem pressure. Furthermore, the possibility of recurrence due to untapped daughter abscesses is reduced, the period of hospitalization is considerably shortened, and repeated x-ray studies and taps are not required.

The objection, which has frequently been directed at this method of treatment, that excision, particularly in the stage of acute cerebritis, leads to greater permanent neurological deficit finds no confirmation in this series in which excision produced no greater deficit than aspiration, though comparisons are exceedingly difficult to make in view of the numerous factors which must be evaluated in each case, not the least of which are the location of the lesion and the degree of progression attained by the time of operation.

The grave significance of changes in the level of consciousness has been emphasized both as an indication for prompt relief of pressure and as an index to prognosis. Since the problem of postoperative meningitis and local recurrence has been markedly reduced with the use of antibiotics, future improvement in results can be expected to result mainly from earlier diagnosis, particularly before the onset of deterioration in consciousness. This point receives strong support from the fact that only 1 of 10 patients with acute cerebritis and none of the patients who were alert died, whereas 8 of the 27 with chronic thick-walled abscesses died.

Insofar as epilepsy is concerned, this continues to be a serious sequel in a high percentage of patients, particularly in the adult group. There is no evidence to suggest that antibiotics have reduced this complication, the incidence being roughly the same as in the days prior to their introduction.

The method of treatment used likewise seems to bear no relation to the development of seizures, since an almost identical incidence of epilepsy (55%) was reported by Gurdjian and Webster[4a] for intraparenchymatous abscesses treated by aspiration or aspiration followed by delayed excision. A recent review of this problem by Northcroft and Wyke[13] in patients treated by aspiration gives a similar incidence.

Conclusions

Cerebral abscesses occur with approximately the same incidence today as prior to the introduction of antibiotics. The gross mortality for this study has been 27% and the operative mortality 22%.
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The objection, which has frequently been directed at this method of treatment, that excision, particularly in the stage of acute cerebritis, leads to greater permanent neurological deficit finds no confirmation in this series in which excision produced no greater deficit than aspiration, though comparisons are exceedingly difficult to make in view of the numerous factors which must be evaluated in each case, not the least of which are the location of the lesion and the degree of progression attained by the time of operation.

The grave significance of changes in the level of consciousness has been emphasized both as an indication for prompt relief of pressure and as an index to prognosis. Since the problem of postoperative meningitis and local recurrence has been markedly reduced with the use of antibiotics, future improvement in results can be expected to result mainly from earlier diagnosis, particularly before the onset of deterioration in consciousness. This point receives strong support from the fact that only 1 of 10 patients with acute cerebritis and none of the patients who were alert died, whereas 8 of the 27 with chronic thick-walled abscess died.

Insofar as epilepsy is concerned, this continues to be a serious sequel in a high percentage of patients, particularly in the adult group. There is no evidence to suggest that antibiotics have reduced this complication, the incidence being roughly the same as in the days prior to their introduction.

The method of treatment used likewise seems to bear no relation to the development of seizures, since an almost identical incidence of epilepsy (55%) was reported by Gurdjian and Webster[4a] for intraparenchymatous abscesses treated by aspiration or aspiration followed by delayed excision. A recent review of this problem by Northcroft and Wyke[13] in patients treated by aspiration gives a similar incidence.

Conclusions

Cerebral abscesses occur with approximately the same incidence today as prior to the introduction of antibiotics. The gross mortality for this study has been 27% and the operative mortality 22%. In patients showing no alteration in consciousness at the time of operation the mortality has been zero.

Mortality today is related mainly to brain stem compression and is not related to the type of organism or the degree of encapsulation of the abscess.

Postoperative epilepsy is the most frequent sequel of cerebral abscess. It is not related to the type of treatment used. The antibiotics have not reduced the incidence of this complication, and, in this series, no case of epilepsy occurred in the survivors who were in the first decade of life.

Primary excision of the abscess is considered to be the most satisfactory therapy for the following reasons: 1. It provides prompt internal decompression. 2. It permits a careful inspection of the abscess bed and the removal of daughter abscesses which might otherwise be overlooked. 3. It eliminates the need for repeated x-ray procedures and aspirations of the cavity and thus shortens hospitalization. 4. The mortality and morbidity is no greater with excision than with aspiration. Any further reduction in mortality will be the result of diagnosis and treatment before the onset of brain stem compression.

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ISONIAZID.—Mycobacterium tuberculosis . . . has suffered a severe buffeting in recent years. Dazed by the attack of streptomycin and harassed by the attentions of para-aminosalicylic acid (PAS), it is now reeling from the blows of isoniazid, the most deadly yet of its chemotherapeutic adversaries. Isoniazid is the hydrazide of isonicotinic acid. . . . It is a white crystalline powder, freely soluble in water and easily absorbed from the gastrointestinal tract. Maximal blood levels are obtained within an hour of ingestion, but effective concentrations are still demonstrable in the blood twenty-four hours after a single dose of 3 mg. per kg. body weight. Ready diffusion into body tissues and fluids occurs, and adequate levels of the drug are obtained in caseous foci (Barclay et al., 1953). Isoniazid diffuses well, whilst streptomycin and PAS fail to do so. It also exceeds streptomycin and PAS in its ability to penetrate cell membranes and can exert its bactericidal effect on bacilli lurking within phagocytes, whereas the intracellular concentration of streptomycin is low and that of PAS non-existent. . . . Whilst the vast majority of the bacilli comprising an isoniazid-sensitive strain are susceptible to very low concentrations of isoniazid, a few mutants inherently resistant to higher concentrations may also be present. Treatment by isoniazid alone eliminates the susceptible organisms but the resistant organisms are unaffected by the drug and may multiply until the strain is predominantly isoniazid-resistant. If isoniazid is used in combination with another anti-tuberculosis agent such as streptomycin, streptomycin will suppress isoniazid-resistant mutants and vice versa. In practice, therapy with two effective drugs in correct dosage almost excludes the possibility of resistant strains emerging, as the likelihood of mutants resistant to both drugs is so small as to be almost negligible.—J. D. Ross, M.B., Current Therapeutics, Isoniazid and Related Drugs, *The Practitioner*, June, 1958.

ABSORPTION OF LOCAL ANESTHETICS

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Factors that determine the rate of absorption of a local anesthetic were studied in canine and, when possible, in human subjects. The drugs used were tetracaine, cocaine, procaine, and benzocaine. Objective data was obtained in the form of actual concentrations of each drug in the blood, and the concentrations obtained by intravenous injection were compared with those obtained by infusion, infiltration, and topical application under various conditions. The concentrations reached in the blood after intravenous injection were much higher when infusion was rapid than when it was slow. Absorption from the mucous membranes of the pharynx and trachea gave blood concentrations comparable to those attained by intravenous injection. Absorption of detectable amounts occurred from the surface of the abraded skin and skin after third degree burns but not after first or second degree burns. Since it must be assumed that the danger of undesired systemic reactions is greater in proportion to the concentrations reached by the drug in the blood, anyone using local anesthetics should be well informed as to the factors that may hasten absorption.

Reactions from local anesthetics may occur irrespective of the mode of administration. They are, however, most common after topical application. Pharmacological data indicate that most toxic reactions from local anesthetics are associated with high plasma drug levels from rapid absorption. Studies of drug concentration in the blood to support these conclusions are few because methods of analysis have been unsatisfactory. Analytic techniques for determining minute quantities of local anesthetics are now available. A number of methods in use are based on the fact that local anesthetics are amines which form complex colored compounds with dyes, such as methyl orange or bromthymol blue. These derivatives are extracted with chloroform or ethylene dichloride, at the proper pH, and estimated colorimetrically. Woods and associates[1] have used a method based on this principle to study the metabolism of cocaine.

In a previous communication, we presented preliminary data on the absorption of tetracaine from the pharynx and trachea.[2] We have expanded these studies and have determined blood drug levels after the absorption of tetracaine, cocaine, procaine, and benzocaine from the subcutaneous tissues, the abraded and burned skin, and the mucous surfaces of the pharynx, trachea, bronchi, stomach, esophagus, and bladder. These drug levels were compared with those resulting from equivalent amounts administered intravenously. For obvious reasons the greater portion of the study was done in dogs, although parallel clinical studies were carried out whenever possible. This report is a summary of our findings and recommendations.

Drug Levels After Infusion, Infiltration, and Topical Application

Infusion.—Striking differences were noted in blood drug levels resulting from a rapid intravenous injection over a period of one minute and those after the infusion of the same dose slowly over a 20-minute period. The rapid injection resulted in a marked upsweep in the drug concentration to a peak level within two minutes, while after slow infusion the level was barely detectable. The contours of the drug level curves were the same with procaine, tetracaine, and cocaine.

A rapid injection of 6 mg. per kilogram of body weight of tetracaine in dogs produced respiratory paralysis. The slow infusion of the same quantity caused no reaction. A slow infusion allows time for dilution, storage, and perhaps hydrolysis or elimination of a portion of the drug. The susceptible cells are not suddenly perfused with a high concentration of the drug as they are after a rapid infusion. A slow infusion continued indefinitely ultimately causes symptoms of systemic toxicity due to cumulative effects.

Infiltration.—Drug levels in the blood, determinations of which were obtained after cocaine and tetracaine were infiltrated subcutaneously over an area 3 by 4 cm. on the abdomen, were detectable but not measurable. Equivalent quantities combined with hyaluronidase gave peak levels of 2 to 3 mcg. per milliliter with tetracaine and 1 to 2 mcg. per milliliter with cocaine 10 to 20 minutes after infiltration. The hyaluronidase obviously facilitates absorption by promoting spreading over a wider area.

Topical Use.—Blood drug level curves after topical application simulated those of a rapid intravenous injection. The peaks were lower, took long-

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er to develop, and did not rise as abruptly, however. Within four to six minutes the peak was one-third to one-half that of a rapid intravenous injection when an equivalent dose was applied to the pyriform fossae.

Fractional Versus Single Applications: Many reactions which occur after the topical use of local anesthetics are caused by the application of too much at one time. Drug levels in the blood were lower when a given dose of a drug was applied to the pyriform fossae in three fractions at three-minute intervals instead of at one time. The peak levels were approximately one-third those obtained after a single application and rose and fell with each application. The contours of the drug level curves were alike for both cocaine and tetracaine. The levels, even though lower than those with intravenous administration, were measurable and greater than those obtained after infiltration or slow infusion.

Effect of Varying the Concentration.—Blood drug levels are a function of the total dose and not the concentration of the solution used. The levels were similar when the same number of milligrams of tetracaine was applied over identical areas with use of either a 2% or a 4% solution. The same was found to be true when cocaine was used as a 4% and as a 10% solution.

Absorption from Particular Areas

Absorption from the Pharynx, Trachea, and Lungs.—The rate of absorption is not the same from all mucous surfaces. Absorption is more rapid from the trachea than from the pharynx. Instillation of cocaine and tetracaine into the trachea gave higher peak levels, a steeper slope, and a more rapid build-up than application to the pharynx. Higher levels and steeper curves were obtained with the animals in the upright position than in the prone. The solution obviously gravitates into the alveoli, from which it is more rapidly absorbed. Finely nebulized cocaine is rapidly absorbed when inhaled.

Absorption from the Stomach and Esophagus.—The absorption rate from the epithelium of the respiratory tract differs from that of mucous membranes elsewhere. Woods and associates [1] reported no significant blood drug levels after instilling cocaine into the stomachs of dogs. Steinhaus,[3] using the pharmacological approach, concluded that there is no appreciable absorption from the mucous membranes of the esophagus and stomach. These findings appear startling since they are contrary to what one would expect. However, we likewise obtained no detectable drug levels after instilling tetracaine and cocaine into the stomach or esophagus. Several possible explanations may be offered for the apparent lack of absorption from the stomach: Many drugs are poorly absorbed from the stomach. Perhaps local anesthetics follow this pattern of behavior. Perhaps the drug is rapidly destroyed as it passes through the liver, which it must do if absorbed from the gastrointestinal tract. Further studies are needed before this question is answered.

Absorption from the Bladder.—No blood drug levels could be demonstrated after instillation of either tetracaine or cocaine into the bladder. This is a reasonable finding since few drugs pass through the bladder's mucous surface. Our data after urethral instillation were inconclusive. No drug concentration in the blood was demonstrable. However, reactions are common after the urethral instillation in human beings. How many of these reactions are due to absorption from a mucosa traumatized by instrumentation is difficult to say, since this appears as a frequent complicating factor.

Absorption from Abraded and Burned Skin.—Local anesthetics are not absorbed from the unbroken skin. They do pass into the blood if the skin is abraded. Measurable drug levels in the blood were obtained when aqueous solutions of tetracaine, cocaine, procaine, and ointments of cocaine, tetracaine, and benzocaine in a water soluble base were applied to the skin over the abdomen which had been freshly abraded. Peak drug concentrations of the magnitude obtained after infiltration resulted within 6 to 10 minutes.

Blood Levels After the Use of Ointments.—Aqueous solutions of cocaine and tetracaine and ointments of tetracaine and benzocaine were applied to areas of skin burned in varying degrees. No detectable drug levels were obtained after application to first or second degree burns. If the vesicles remained intact and there was no raw surface, detectable drug concentrations were not obtained in cases of third degree burns.

Applications were made immediately and at intervals of 6 to 48 hours after burning. Application of the drug to the raw surfaces after opening the vesicles gave detectable drug levels in the blood. No absorption occurred after application to the eschar of an old burn. However, when the eschar was removed and the drug applied to the raw area, the blood drug levels were measurable. Thus, local anesthetics should be applied cautiously to raw, granulating surfaces.

Influence of Vasoconstrictors

The effectiveness of vasoconstrictors in retarding absorption of local anesthetics is well recognized. The systemic toxicity of procaine after infiltration is reduced 30% or more by the addition of a 1:100,000 concentration of epinephrine hydrochloride to the solution. Spinal anesthesia may be prolonged as much as 60% by adding epinephrine to the solution used for spinal anesthesia. Other vasoconstrictors retard absorption, but none is as effective as epinephrine. Phenylephrine (Neosynephrine) hydrochloride and cobefrine (Corbasil) are not as effective and require much larger doses to produce vasoconstriction. Arterenol is nearly as effective as epinephrine but is not used because of the possibility of slough.

Since vasoconstrictors are effective for infiltration, nerve blocking, and spinal anesthesia, it is not unreasonable to assume that they are also effective in retarding absorption from mucous membranes. This, however, is not the case. The differences in blood drug levels after the application of tetracaine and cocaine to the pyriform fossae and the trachea with and without epinephrine were not significant. After preliminary spraying with epinephrine and arterenol in sufficient quantities to cause blanching of the mucous membranes, drug levels, after the application of both drugs, were nearly the same as those of the controls.

Vasoconstrictor Effect of Cocaine.—Cocaine differs from other local anesthetics in possessing a vasoconstrictor action. Otolaryngologists utilize this properly to "shrink" the nasal mucous membranes. The belief is widely circulated that the more concentrated (10%) solutions of cocaine cause fewer systemic reactions than the dilute solutions (4 or 5%) because they produce a more intense vasoconstriction and, therefore, greatly retard absorption. This assumption is based on conjecture rather than on fact. Blood drug levels after the application of identical weights of cocaine as a 4% and as a 10% solution to areas of identical size in the pyriform fossae were similar.

Effect of Premedicants

Premedication with atropine supposedly retards absorption because the mucous membranes are dry. Curves of levels of cocaine and tetracaine after pharyngeal instillation were the same whether atropine had been used for premedication or not. Barbiturates, likewise, do not influence absorption. Drug concentration curves were identical in studies of anesthesia induced with secobarbital (Seconal) and in studies done without anesthesia.

Absorption of the Basic Form

Local anesthetics are organic bases (amines) which form salts with acids. The bases are, comparatively speaking, insoluble in water. The salts are employed because they are more soluble and stable. Alkaline substances precipitate the free bases from aqueous solutions of salts. A suspension of cocaine base, known as "cocaine mud" has been used topically with the reasoning that the drug gives longer anesthesia and fewer reactions because it is slowly absorbed and remains in contact with tissues longer.

Our studies indicate that the free bases are absorbed almost as rapidly from mucous membranes as are the salts. Detectable blood drug levels were found after tetracaine and cocaine base suspended in water were applied to the mucous membrane of the pyriform fossae. The drug levels were slightly lower than those obtained when the hydrochloride was used. They were not detectable when the drugs were incorporated in oily ointment bases. The basic form is more soluble in oils than in water and is, therefore, absorbed slowly. However, the cocaine and tetracaine base and benzocaine incorporated in a water soluble ointment base applied to the mucous membranes gave drug levels similar to those resulting from applications of aqueous suspensions. Obviously, the bases are easily and freely absorbed. This has practical significance in the use of ointments in the anorectal areas.

Considerations in Induction Anesthesia

Period of Latency.—An overlooked, important, and often disregarded property of local anesthetics is the period of latency after application of the drug. This varies with each drug and with the technique of application, the site of application, and the total dose. The longer-lasting drugs have, comparatively speaking, longer latent periods. The period of latency is shortened by increasing the concentration and the total dose.

Operators who apply the drug and immediately commence instrumentation usually find anesthesia inadequate. They then apply additional fractions before the effect of the first application has become established. This practice often leads to overdosage and systemic intoxication. With the exception of benzocaine, the latent period of most topically applied local anesthetics exceeds five minutes. Therefore, sufficient time should be allowed for the establishment of anesthesia before more of the drug is added.

Status of the Patient.—The relationship of the metabolic state of the patient to the response to local anesthetic is seldom considered when these drugs are used for surgical anesthesia. Fever, dehydration, electrolyte imbalance, pulmonary insufficiency, and cardiovascular disease may be important modifying factors. Endoscopic procedures, as a rule, are performed with use of topical anesthesia. Bronchoscopy, for example, is frequently performed in patients with pulmonary insufficiency. During the instrumentation, ventilation is often decreased. This, in turn, affects circulation. Mild degrees of overdosage which are easily tolerated by patients who are good risks may terminate fatally in the poor-risk patient.

Limits of Dosage.—The most important precaution to be followed to avoid reactions is to limit the dose. It is impossible to designate limits of dosage of local anesthetics, because such limits vary from individual to individual and even in the same individual at different times, depending on the general state of the subject at the time. Recommended doses for newly introduced drugs are often based on lethal doses in animals. Doses of older, well-established drugs are based on impressions derived from clinical experience. Procaine is the standard for comparison of toxicity and potency of local anesthetics. Most regional anesthetists limit the dose of procaine for perineural injection or infiltration to 1 Gm. at any one sitting. Therefore, 50 cc. of a 2%, 100 cc. of a 1%, or 200 cc. of 0.5% solution are the maximum volumes to be injected. Tetracaine is approximately 10 times more potent and toxic than procaine. The maximum dosage, with procaine used as the basis of comparison, would be 100 mg. for infiltration or perineural injection. Piperocaine (Metycaine) hydrochloride is slightly more potent and toxic than procaine; therefore, 1 Gm. should be the limit. Lidocaine (Xylocaine) hydrochloride is twice as potent and twice as toxic as procaine; therefore, 0.5 Gm. is considered the limit. Hexylcaine (Cyclaine) hydrochloride and chloroprocaine (Nesacaine) hydrochloride are like procaine and, therefore, are not used in quantities exceeding 1 Gm.

This reasoning cannot be applied to the use of these drugs topically because the rate of absorption, the extent of the area to which the drug is applied, and the type and vascularity of the mucous membrane in question are so variable. Procaine is not effective topically and cannot be used as a basis for comparison. Comparisons of duration of action are usually made with cocaine as the standard. Comparative doses of cocaine and other topical anesthetics for man are not available. From the cases we have studied most difficulties seem to have arisen when one-fourth to one-third of the limit recommended for infiltration has been exceeded topically. We wish to point out that quantities less than this may cause reactions in some patients, because an arbitrary rule such as this cannot take into consideration individual susceptibility, intolerance, and the technique of application.

Use of Sprays.—The mode of topical application is often debated. Some anesthetists are opposed to the use of sprays. It is impossible to adequately anesthetize the nasal and pharyngeal mucosa without nebulizing the solution. Thus, it is virtually impossible to do without a spray. Careless use of a spray may, however, lead to overdosage. Few sprays are designed specifically for topical anesthetization. A spray suitable for local anesthesia should deliver particles as nearly uniform in size as possible. Generally, particles less than 30 μ in diameter form a mist which diffuses into the alveoli where they are quickly absorbed. Larger particles coalesce into a film which coats the pharynx and tracheobronchial tree. Coarse particles unite to form drops which pool in the upper pharynx and trickle into the trachea, from which the solution is rapidly absorbed. Therefore, a spray should be selected which delivers particles of a uniform size, neither too large nor too small. A "microspray" devised by Carabelli,[4] for instance, delivers a mist which lodges in the nose, pharynx, and trachea. Approximately 25 squeezes of the bulb are required to deliver 1 cc. of fluid. The sprays used to vaporize solutions of vasopressors for the treatment of nasal disorders are inadequate because they deliver large volumes of mixtures of particles of all sizes, both fine and coarse. In some cases one squeeze of the bulb delivers approximately 1 cc. of fluid. The use of such sprays sooner or later leads to overdosage.

Intolerance and Allergy.—One must not infer from this discussion that every reaction from a local anesthetic is due to overdosage. Intolerance, hyperergy, and allergy do occur, and, therefore, they should not be discounted as a possible cause of reaction. They do, however, occur far less frequently than is alleged. Overdosage leads by far as the causative mechanism of reactions after the use of local anesthetic drugs.

"Caine" Versus "Non-Caine" Drugs

The suffix "caine" appended to the name of a drug usually indicates that the compound is a local anesthetic. The suffix does not necessarily designate a particular chemical or pharmacological type of drug. It has been used to name compounds which are qualitatively similar to procaine and cocaine in pharmacological behavior. Certain pharmaceutical companies have been referring to local anesthetics in their advertising as not a "caine" type of drug, with the inference that the "caine" drug is a specific type which is deleterious, more toxic, or allergenic. Whether a drug is a "caine" or "non-caine" type is merely a matter of nomenclature. Nomenclature is not a criterion of toxicity or allergenic properties. Sensitization may occur from many varieties of drugs—local anesthetics included. These qualities are not peculiar to local anesthetics or to the local anesthetics whose names end in the suffix "caine." One therefore must be guided by all the biochemical and pharmacological data on hand in assessing the worth of a drug.

Conclusions

The majority of reactions from local anesthetics are due to high plasma drug levels from the use of excessive quantities or rapid absorption. Reactions are more common after surface application than after injection. Absorption from the mucous membranes of the pharynx and trachea results in drug levels comparable to those with intravenous injection. Absorption is more rapid from the trachea than from the pharynx. Absorption is a function of total dosage rather than of concentration. Drug levels in the blood after the topical application of equivalent weights of cocaine as 10% and 4% solutions are nearly alike.

Vasoconstrictors, such as epinephrine and arterenol, do not retard absorption from the mucous membranes. They are, however, effective in retarding absorption after perineural or subcutaneous injection. The vasocontrictor effect of a 10% solution of cocaine is no more effective in retarding absorption than the 4% strength.

Detectable drug levels in the blood are obtained after application of local anesthetics to broken and abraded skin and from the raw surfaces of third degree burns. There is no absorption from the second degree or first degree burns.

Local anesthetics incorporated in water soluble creams are absorbed from the mucous membranes. Absorption is poor if the drug is incorporated in an oily medium. Aqueous suspensions of the crystals give detectable drug levels when applied to the mucous membranes. Hyaluronidase facilitates the absorption of injected local anesthetics but has little influence on absorption in surface application.

Anyone proposing to administer a local anesthetic should be throughly familiar with the pharmacological behavior of the drug employed and be prepared to deal quickly with untoward reactions which may develop.

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PROBLEM OF THE RUPTURED DIAPHRAGM

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A high index of suspicion on the part of the physician is the most important factor in diagnosing ruptured diaphragm. Clinical manifestations in this series vary from no symptoms to life-endangering problems immediately after the injury. The presence of extraneous shadows above the diaphragm, such as gas-containing or homogeneous areas, along with a shift of the mediastinal structures away from this side, is extremely suggestive of a ruptured diaphragm. Of 112 patients who received surgical treatment for a ruptured diaphragm, 78 incurred the injury in automobile accidents. Transthoracic repair of the ruptured diaphragm is recommended as early as the patient's condition permits.

A total of 112 patients have received surgical treatment at the Mayo Clinic for a ruptured diaphragm. Of these, 78 incurred the injury in automobile accidents. With the casualty lists mounting from highway travel, no statistical manipulation is required to augment the conclusion that the patient with a ruptured diaphragm is not a "thing of the past." Physicians in every community undoubtedly can anticipate the management of such patients.

Definition and Etiology

The problem in these 112 cases was loss of anatomic continuity of the diaphragm of variable extent, with the passage of some of the abdominal contents into the pleural space. No cases were included in which the herniation of abdominal viscera was through the esophageal hiatus, and a hernial sac was never present in this series. Harrington[1] previously reported 67 of these 112 cases. Seven patients gave histories of some inflammatory process, such as a subphrenic abscess or empyema, after an operation or a penetrating injury. As already mentioned, significant trauma in an automobile accident was present in 78 instances. Another common form of injury was blunt trauma, such as crushing pressure by overturned farm machinery or a fall from a height of many feet. Penetrating injuries as a result of gunshot or stab wounds accounted for a few cases. Iatrogenesis was apparent in one case. With the increasingly casual incision of the diaphragm in operative approaches of one kind or another, one might anticipate an increase in the number of such cases. A history of previous injury could not be elicited in four patients, suggesting that the trauma required to rupture the diaphragm need not be severe.

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Clinical Manifestations

The patients ranged in age from 1 to 80 years, the average being 35 years. There were 92 males and 20 females. The defect was on the left side in 104 cases and on the right in 8. Bilateral rupture, such as reported by Manlove and Baronofsky,[2] was not encountered, although multiple defects on one side were observed.

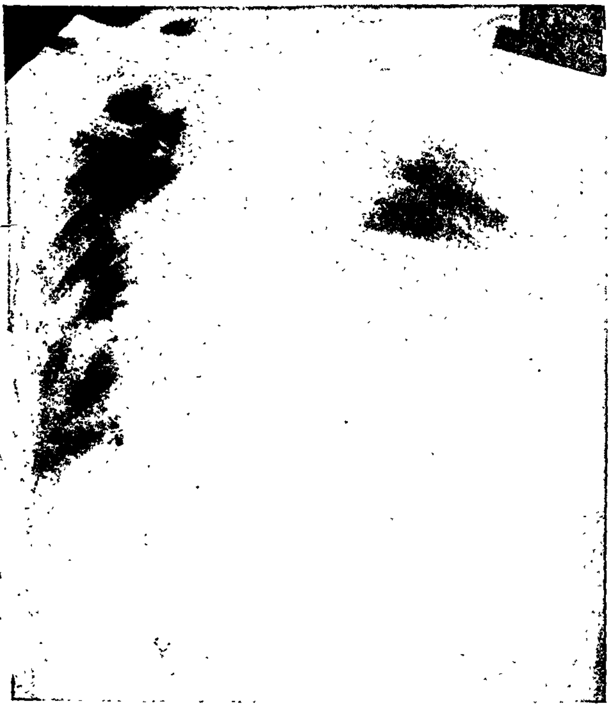

Fig. 1.—Distended abdominal viscera in left thorax, with llapse of left lung, shift of mediastinum, and compression f right lung.

The symptoms varied consistently, which suggested a useful grouping within the series. This appeared reasonable, since the problems of management were significantly different in each group. Group 1 included patients who did not have symptoms. Group 2 comprised those with prolonged gastrointestinal or respiratory complaints, usually not severe and often considered functional in origin. Group 3 included patients with symptoms similar to those in group 2 but who also had some acute complication, such as intestinal obstruction. Group 4 was made up of those with severe, life-endangering problems immediately after the injury.

Group 1.—Group 1 included six patients who had no symptoms and whose diaphragmatic defects were noted on routine thoracic roentgenograms.

Group 2.—The 91 patients in group 2 made up the great majority of the series. Their stories were remarkably consistent, in that after a mishap, often an automobile accident, in which injuries of varying severity were sustained, upper abdominal distress aggravated by eating was noticed. Discomfort often was referred to the left shoulder, especially when a reclining position was assumed in the hope this would relieve the distress. The main complaints were gastrointestinal in half of the patients. About 25% noted dyspnea and peculiar sensations in the thorax. In another 25% the main complaint was pain, usually in the left upper quadrant of the abdomen and left lower part of the thorax, sometimes cramping but occasionally pleuritic, often referred to the left shoulder, and aggravated by the ingestion of meals. Gastrointestinal bleeding was noted in only three patients; this was not massive.

Group 3.—The nine patients in group 3 had chronic symptoms similar to those of the patients in the second group but were forced to seek medical attention because of acute symptoms from obstruction of the gastrointestinal tract at any point from the distal portion of the esophagus to the descending colon. Such an occurrence was weeks to years after the original injury. Lack of abdominal distention in these cases was deceiving initially.

Group 4.—Only six patients comprised group 4, but in many respects they provided the most challenging problems of diagnosis and treatment. These patients were in desperate trouble within a few hours after injury, largely because of deranged cardiorespiratory function precipitated by the presence of distended abdominal contents in the pleural space (fig. 1). In addition, these patients had severe associated injuries.

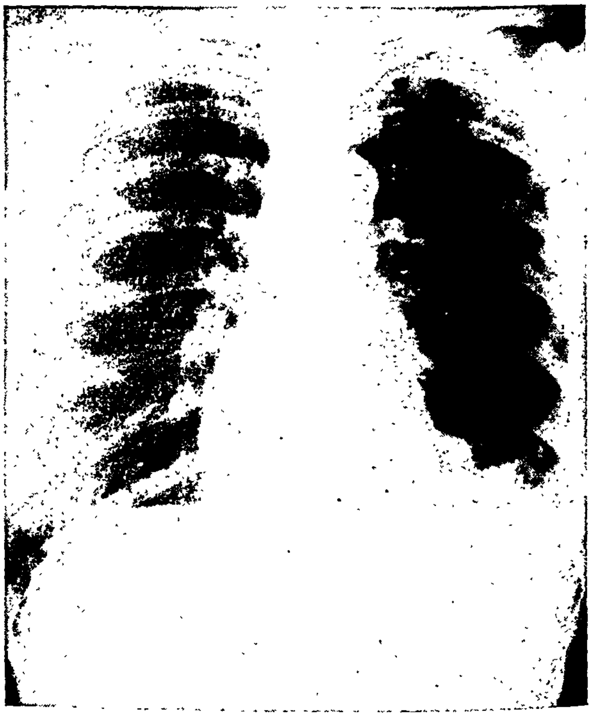

Fig. 2.—Extraneous gas shadow above normal level of left diaphragm, with slight movement of mediastinal structures to right.

Diagnosis

The clinical story in a large percentage of these 112 patients was almost diagnostic. The plain thoracic roentgenogram often was interpreted as revealing eventration of the diaphragm. The presence of extraneous shadows above the diaphragm, such as gas-containing or homogeneous areas, along with a shift of the mediastinal structures away from this side was extremely suggestive of a ruptured diaphragm (fig. 2). Discoid collapse of the lung adjacent to these extraneous shadows was occasionally evident. Passage of a tube through the nose into the stomach prior to thoracic roentgenography is a simple and valuable method for demonstrating the presence of the stomach in the thorax (fig. 3). The use of contrast medium given by mouth or in an enema indicated the diagnosis in a majority of patients, although this is often not necessary and, indeed, may be contraindicated in acutely ill patients with intestinal obstruction (fig. 4). Pneumoperitoneum was used in only one patient.

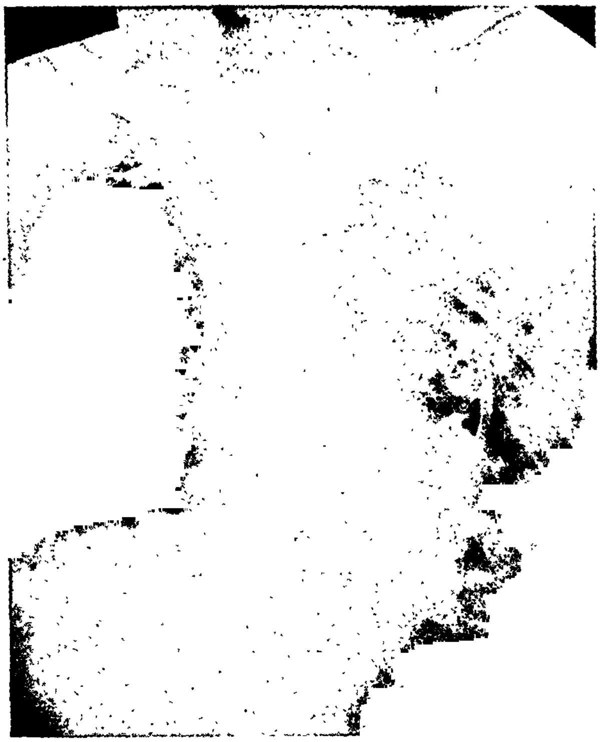
Fig. 3.—Use of gastric tube to confirm diagnosis of ruptured diaphragm.

Operative Findings

The sites of disruption of the diaphragm did not have any consistent anatomic location. We were unable to correlate the ruptures with any theoretical anatomic weakness. The central tendon was often intact, with the tear circumventing this more sturdy portion or radiating peripherally from its borders, but it was not immune from traumatic laceration. The rents varied in length; some were a few centimeters long, and some extended across the entire left leaf of the diaphragm and into the right side. Such tears usually traveled anterior to the esophageal hiatus, with its crura remaining intact, but the crura actually were torn in 11 instances. In three cases, the tear involved the pericardium but cardiac tamponade did not occur. The diaphragm in eight cases apparently was torn completely from the anterior or lateral thoracic wall.

The omentum has the greatest propensity for traversing a diaphragmatic defect into the pleural space, but it seldom was seen as an isolated structure above the diaphragm. The omentum and a portion of stomach or colon were the most common occupants of the thorax, but small intestine, spleen, the tail of the pancreas, liver, and even adrenal and kidney frequently found their way into the thorax.

The left lower lobe was not aerated at the time of operation in a number of patients, but it was not necessary to decorticate the lung in a single instance to reexpand the lung adequately. In consideration of the usual trauma, it is surprising that the spleen seldom presented evidence of capsular damage; splenectomy was done in only two instances. Adherence of viscera to the edges of the defect usually was present in the patients whose injuries were not recent, but it was interesting to note how few adhesions were present between viscera in the pleural space. Pronounced dilatation and hypertrophy of the walls were noted in the thoracic stomachs, some of which were described as four to five times normal size. Although stomachs may be equally large in some cases secondary to acute gaseous or fluid distention, it can be speculated that

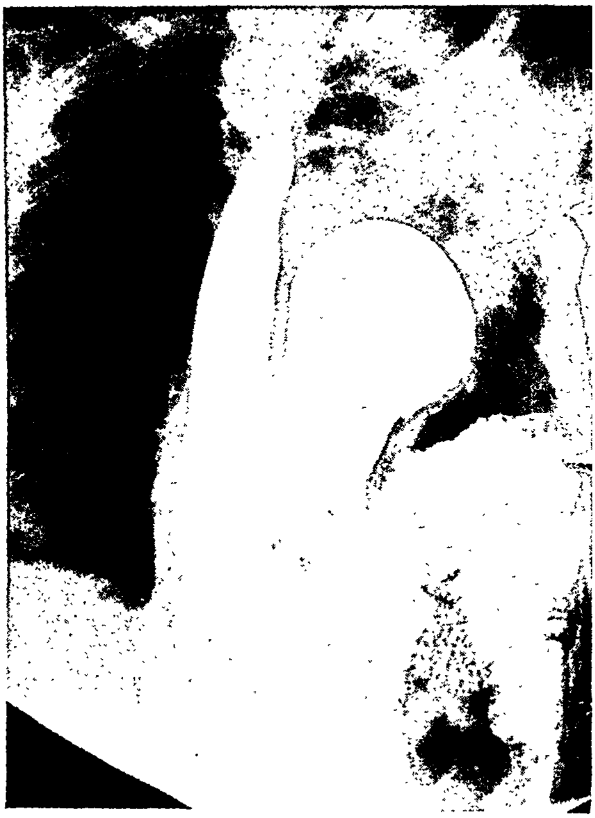
Fig. 4.—Use of contrast medium to demonstrate presence of stomach and small intestine in thorax.

chronic partial obstruction and functional derangement led to these hugely dilated stomachs. This was true, in isolated instances, of the colon and small intestine as well. Interesting, but less common, findings were strangulation of a portion of the stomach, stricture at the esophagogastric juncture where the tomach turned abruptly around an intact esophageal hiatus into the thorax, and perforation of the esophagogastric junction with formation of abscesses.

Treatment

Repair was accomplished by the abdominal route in 75 cases, whereas it was done transthoracically n 34 cases and thoracoabdominally in three cases. Four patients died in the immediate postoperative period, resulting in a hospital mortality of 3.6%. The phrenic nerve was crushed in 67 of the earlier cases: The undesirable effects of such a maneuver now are considered to outweigh its possible benefits, and this is no longer done. At the present time, approach through a thoracic interspace is utilized. This technique permits accurate freeing of adherent structures and reapproximation of the freshened edges of the diaphragm with two rows of interrupted nonabsorbable sutures. Reinforcement of the suture line with a strip of fascia lata was used to advantage in many cases but has not been included in recent repairs; results appear to justify its omission.

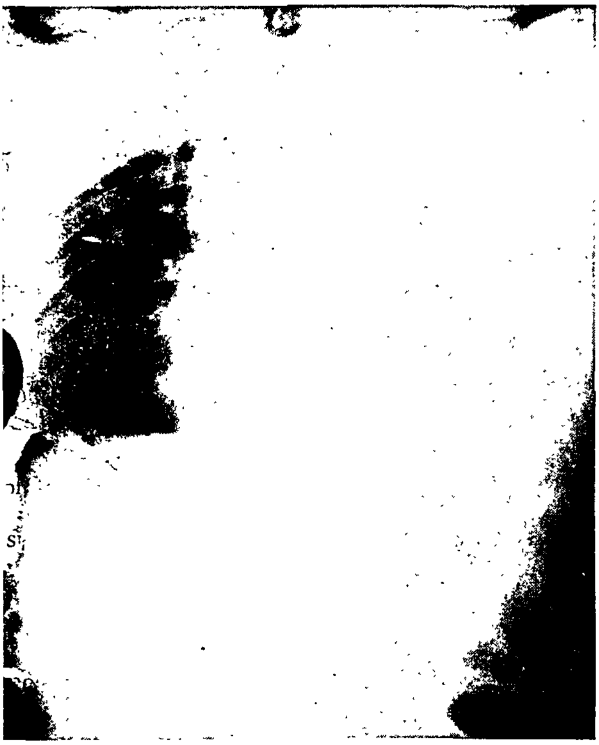

Fig. 5.—Obstruction caused by torsion at esophagogastric junction, making decompression of stomach by tube impossible.

In contradistinction to the simple technical management in the usual case, certain diaphragmatic reconstructions may present major problems. If the diaphragm has been torn from the rib cage and time, with its resulting atrophy, has erased previously existing remnants, the surgeon may be forced to such maneuvers as partial thoracoplasty, elevation of prerenal fascia, suture of the capsule of the liver to the periphery of the defect, or employment of a plastic prosthesis, such as Dacron or compressed Ivalon. Disruption of the musculature forming the esophageal hiatus, such as occurred in 11 cases, requires careful reconstruction. In this medial zone, use of a flap of pericardium, as suggested by Brookes,[3] may be useful in the repair.

When simple or complicated gastrointestinal obstruction is associated with this injury, the intestine must be handled as it is on any other occasion. It is important that dilated intestine not be forced into the abdomen, making it difficult to repair the diaphragm and reducing the chances of a good result. The intestine should be decompressed by enterostomy and suction. With reasonable precautions and maintenance of pulmonary expansion postoperatively, the possibility of infection in the pleural space is minimized. As mentioned previously, these patients often have severe associated injuries, and one may have to use a separate abdominal incision or cross the costal arch to manage certain intra-abdominal injuries. Similarly, other thoracic injuries may be present; in one patient, a "flail chest" was immobilized at the time the diaphragmatic rupture was repaired.

Comment

Years often pass between the rupture and the surgical repair of the diaphragm; the average interval was four and one-half years in these 112 patients. From a practical standpoint, this prolonged interval could present real problems with respect to financial compensation by insurance companies or responsible parties. In another practical way, the resulting atrophy of remnants of the diaphragm sometimes caused technical problems of repair that probably would not have existed had repair been done shortly after the accident. Cardiorespiratory and gastrointestinal complications would have been avoided. Carter and associates[4] pointed out that 90% of strangulated diaphragmatic hernias are traumatic in type. These are all good reasons for advocating early repair of ruptured diaphragms.

The management of the patient with a ruptured diaphragm and severe associated injuries needs careful evaluation in regard to which condition takes precedence for treatment. With simple measures directed at decompression of the gastrointestinal tract and expansion of the lung, the diaphragmatic injury may be handled conservatively and repaired when the patient's condition permits. However, decompression may not be possible (fig. 5), and even the "frowned upon" technique of inserting a trocar into the distended viscera transthoracically may improve the patient sufficiently to permit induction of anesthesia, surgical decompression, and repair of the diaphragmatic defect.

Diagnostic methods are relatively simple and do not require complicated equipment or expert interpretation. A high index of suspicion on the part of the physician is obviously most important. Transthoracic repair of the diaphragmatic rupture is usually a relatively straightforward and effective procedure. With the average age of the patients in our series being 35 years, it is apparent that one usually has the advantage of treating a patient who otherwise is in good health. Severe associated injuries sometimes militate against an extremely low mortality, but a ruptured diaphragm itself need not lead to fatal complications.

Summary

A total of 112 patients with ruptured diaphragm have been surgically treated at the Mayo Clinic. Of these ruptures, 104 were on the left side and 8 on the right. Clinical manifestations in this series varied from no symptoms to life-endangering problems immediately after the injury; however, the average duration of chronic gastrointestinal and cardiorespiratory complaints was four and one-half years.

The diagnosis of a ruptured diaphragm can be accurately made with simple techniques. Transthoracic repair of the ruptured diaphragm is recommended as early as the patient's condition permits. Temporary conservative management of the defect may be reasonable in the presence of associated severe injuries, which are important in the hospital mortality in this group of patients.

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CLINICAL IMPORTANCE OF URETERAL DUPLICATION AND ECTOPIA

Ian M. Thompson, M.D.
and
Arjan D. Amar, M.D., Ann Arbor, Mich.

Among the urologic patients admitted to a university hospital the incidence of duplication of the ureter has been 6%. The vesical orifice of the ureter has often been found to lie outside the vesical trigone, and such ectopia in every case has been concomitant with ureteral duplication. These anomalies are associated with much functional disturbance. Infections or other serious disease conditions were present in more than 40% of the cases. Incontinence of urine is not always noted. The patient may be continent even when the ectopic ureteral orifice is in the vulva. One patient with two extravesical orifices did not have urinary leakage until the age of 20, after the birth of her first child. The frequency of these anomalies and the variety of symptoms they produce indicate that they should be kept in mind wherever the physician is confronted with obscure urinary complaints.

Perhaps the most prevalent of genitourinary anomalies is the variety of divisions or segmentations of the conduit system which comes under the heading of ureteral duplication. Commonly categorized as unilateral [illegible]ilateral, partial or complete, duplication relates to a plurality of collecting system occurring below the level of the ureteropelvic junction. Above this point it is referred to simply as a bifid or trifid pelvis (fig. 1). Ureteral ectopia, so frequently a consequence of duplication, pertains to orificial placement in other than a trigonal position.

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To understand the nature of the aberrations which may be encompassed by ureteral duplication, and especially in considering ureteral ectopia, both normal and digressive embryologic factors must be clarified for the manifold pathological implications to be fully appreciated. In the third and fourth

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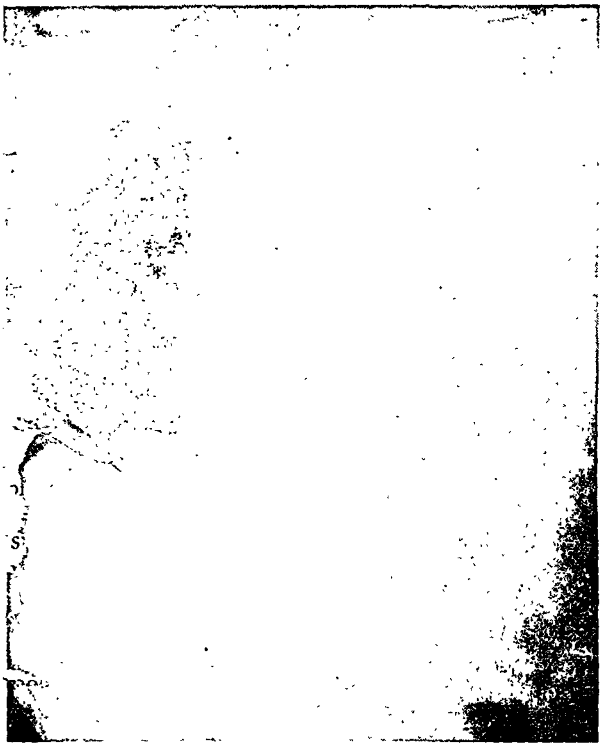

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weeks of embryonic life, a budding occurs in the Wolffian duct near its attachment to the cloaca, constituting *the beginnings of the ureteropelvic* conduit system. The ureteral buds extend upward into the developing kidney tissue and distally are gradually absorbed into that portion of the cloaca which will become the urinary bladder. In the course of the development of the ureteral components there is the possibility that more than one bud, *or one ureter, may arise* from the Wolffian duct. Since duplication may occur in either half of the ureter, it is conceivable that the stimulus toward bifurcation may be primarily a ureteral rather than a Wolffian duct idiosyncrasy.

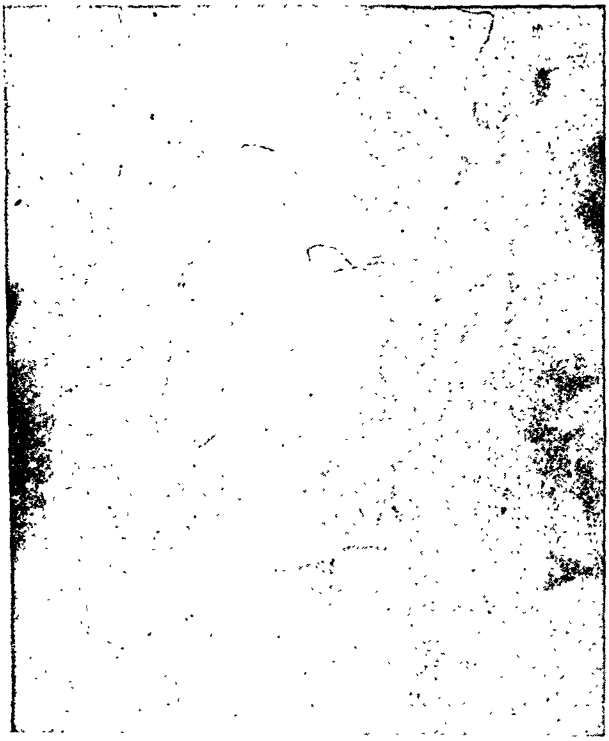

Fig. 1.—Bifid pelvis on right; complete duplication on left.

A few further points are important: Absorption of the ureteral openings into the bladder and the rotation of the kidneys as ascension from the pelvis occurs almost invariably cause the segment of ureter *draining the upper portion of the kidney* to emerge at a point lower in the bladder than the ureter from the inferior pole of the kidney (fig. 2). The normal downward growth of the area where the ureters enter the bladder can thus in cases of duplication be productive of ectopic positions of the ureteral orifices. The close proximity of the Müllerian duct system during the developmental period, coupled with any aberration of ureteral rotation-absorption, may *allow an orifice to be incorporated* into a Müllerian duct and thereby subsequently empty into a uterine tube, uterus, or some portion of the external genitalia. Thus an orifice may drain without bladder sphincter control in the female, producing the distinguishing characteristic *of normal voiding and continual* incontinence. In the male, it is presumably not embryologically feasible for an orifice to migrate to a position outside sphincter control since the external urethral sphincter developes at a later date and thus is immune to the penetration of an ectopic ureter. The ureter may, however, open ectopically into other portions of the male genital tract which derive from the Wolffian duct. In both sexes an intestinal connection may be a later consequence of the embryonic cloacal-ureteral attachment.

Incidence

Duplication has been annotated as occurring in approximately 4 to 6% of the population. At the University Hospital at Ann Arbor, Mich., the urographic incidence has been found to be 6%. Although *ectopia has been reported to occur in* but one-half of 1% of the cases of duplication, more than 75% of ureteral ectopia is reputedly associated with duplication. In our series ectopia was a frequent finding and in all cases occurred in conjunction with duplication.

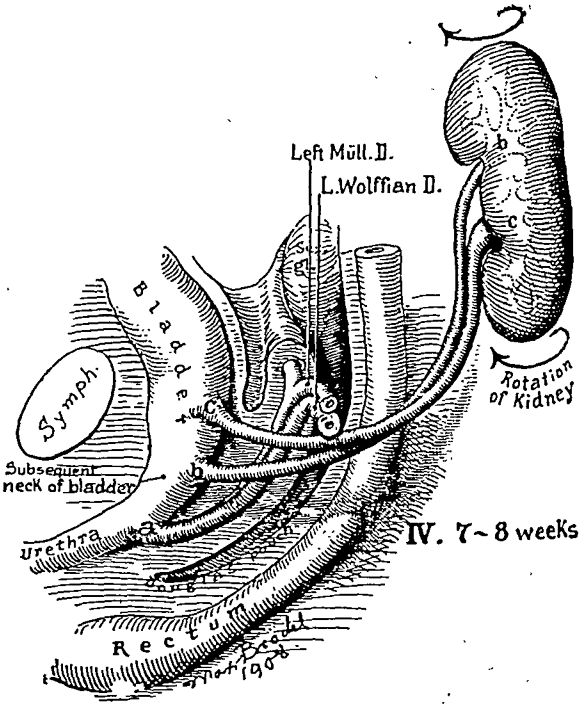

Fig. 2.—Kidney ascension and rotation causing duplicate ureters to cross. Note close proximity of ureteral orifices to Müllerian and Wolffian duct openings.

Frequency of Associated Disease

Ureteral duplication and ectopia would be primarily of academic interest were they not associated with a seemingly inordinate amount of clinical abnormality. At the University Hospital disease concomitance was present in more than 40% of the cases.

Pathological processes which accompany or are associated with duplication and ectopia are due most frequently to the anomalous position of the lower ureteral orifice, even when located within the confines of the bladder. The fact that such orifices open in the region of the vesical neck or urethra, although only rarely productive of loss of control, may occasion sufficient intermittent resistance to permit obstructive potentialities to mature. Similarly, when an orifice is attached to a seminal vesicle, uterus, or uterine tube, back pressure is unavoidable and obstructive consequences may be dramatic (fig. 3). Ectopic ureters so situated as to drain freely to the outside engender harmful effects on the kidney due to easy access of bacterial invaders and the compressive attributes of the structures surrounding the ureter in its ectopic extravesical course.

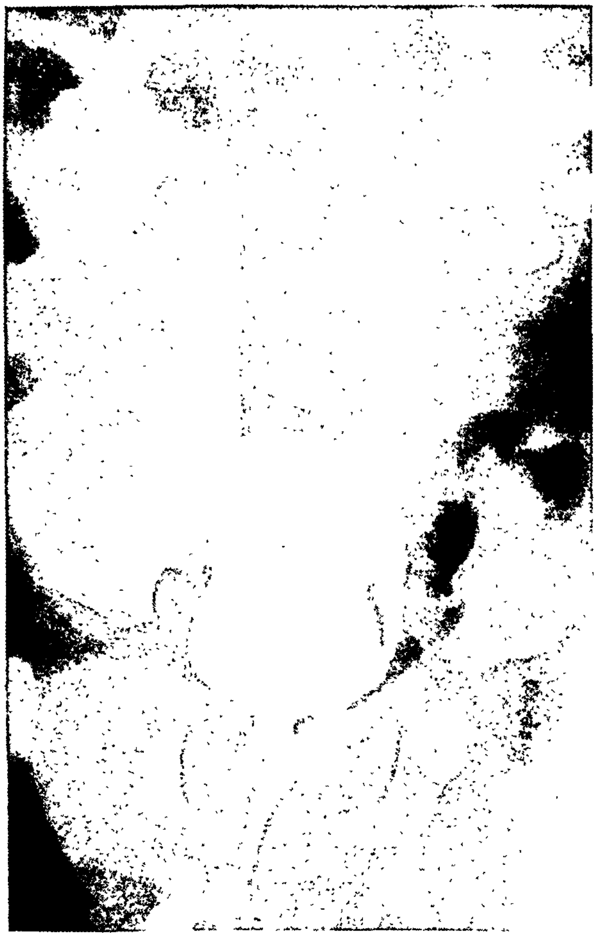

Fig. 3.—Ureters opening ectopically into prostatic urethra occasioning marked hydronephrosis.

The incidence of disease bearing no apparent etiological relationship to the duplicated or ectopic ureter is still much more frequent than can be readily explained by any known mechanism. When the prevalence of incidental abnormality is conjoined with many pathological findings directly attributable to the malpositioned orifices of duplications, the high incidence of disease is better understood and the clinical importance more readily accepted.

Radiographic and Clinical Diagnosis

Certain features referable to the diagnosis of ureteral duplication and ectopia do not appear to be generally appreciated in an analysis of the usual consideration afforded this oftentimes puzzling entity. Perusal of our material has stimulated us to postulate that unrecognized duplications are much more prevalent than is commonly conceded and that they may be responsible for many otherwise inexplicable urinary tract symptoms and signs. To clarify the basis for these postulations, the fact that ureteral duplication usually becomes apparent only subsequent to urographic study must first be recognized. Abnormality may occur in either portion of a duplication, but since the upper segment drains to the lower orifice, which so frequently is malpositioned, it is this upper segment which is more prone to malfunction and radiographic nonvisualization. Thus it is commonly the unvisualized upper segments which become diagnostic problems.

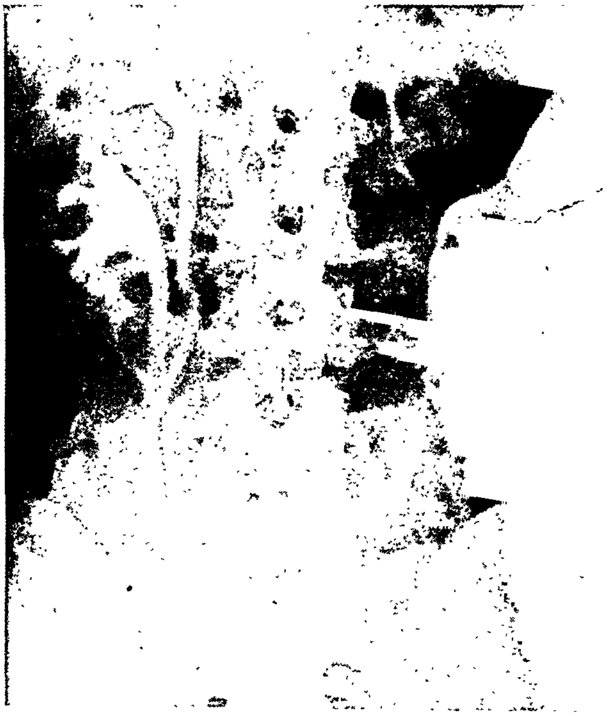

Fig. 4.—Duplication on right; insufficiency of collecting system to upper pole parenchyma and downward and lateral displacement of left pyelogram.

In the absence of the clear delineation of each component of a duplication, certain urographic characteristics have been promulgated as indicative of the presence of an unvisualized segment. First, there is an insufficiency of visible collecting system in relation to the total renal parenchyma, the usual discrepancy being in the supply to the upper pole. Perhaps a more characteristic urographic finding is downward and lateral displacement of the visible collecting system without parenchymal deformity (fig. 4 and 5). Another feature is the lack of an upper major calyx in what otherwise would be construed as a normal collecting system, indicative of the possibility of an unvisualized upper segment which ordinarily would be the upper calyx of a nonduplicated renal conduit (fig. 6). An equivocal sign of unrecognized duplication is a lack of "mirror image" urographic appearance of the two kidneys. Should the pyelographic contours be totally dissimilar, suspicion might be aroused as to the possibility of an unvisualized segment.

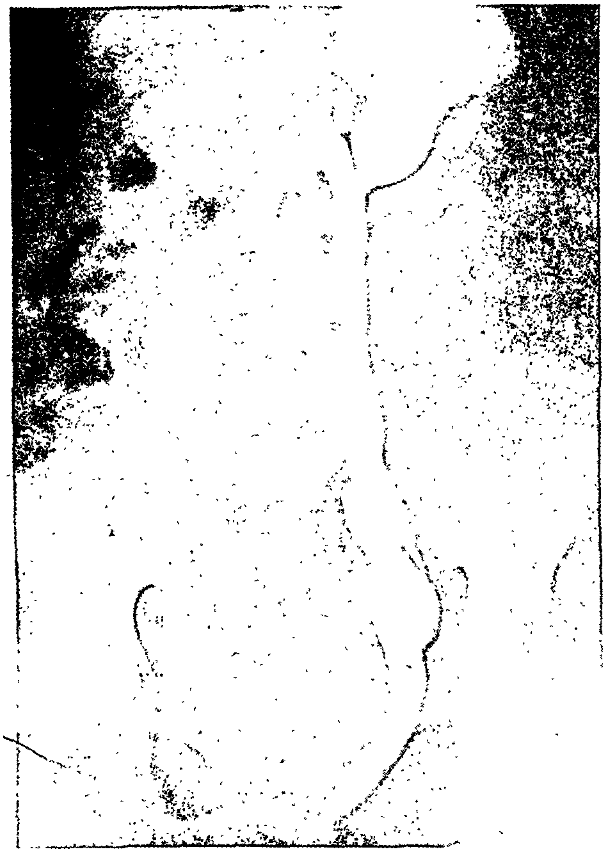

Fig. 5.—Displacement of left pyelogram, caused by marked hydronephrosis in previously unvisualized upper segment. Orifice was ectopic in vulva.

The essential diagnostic picture of ureteral ectopia in female patients has reputedly been urinary incontinence associated with an otherwise normal voiding pattern, whereas in male patients the characteristic features have commonly been those of ureteral duplication. From the clinical point of view it should be apparent that many of the symptoms and signs arising from the pathological consequences of ureteral duplication or ectopia stem from the obstruction or infection so produced and thus are relatively nonspecific in respect to diagnostic import.

The predication that the customary urographic features of nonvisualized ureteral segments cannot be entirely relied on as diagnostic aids is borne out most characteristically in the following two cases: Persistent urinary infection in the presence of normal urograms and a normal bladder had been a frustrating medical travail for a young woman, until a previously unvisualized duplicated segment opening at the vesical neck was discovered (fig. 7). In the other instance, recurring urinary infection ostensibly had been found to derive from a urethral diverticulum. Its situation at the bladder neck had prompted an unroofing rather than an excisional procedure and possibly fortunately so. A complaint of pain in the flank during urination brought the patient to postoperative cystography, demonstrative of reflux up the unsuspected duplicated segment. A subsequent intravenous pyelogram showed return of function after improved drainage to the upper ureter had been established.

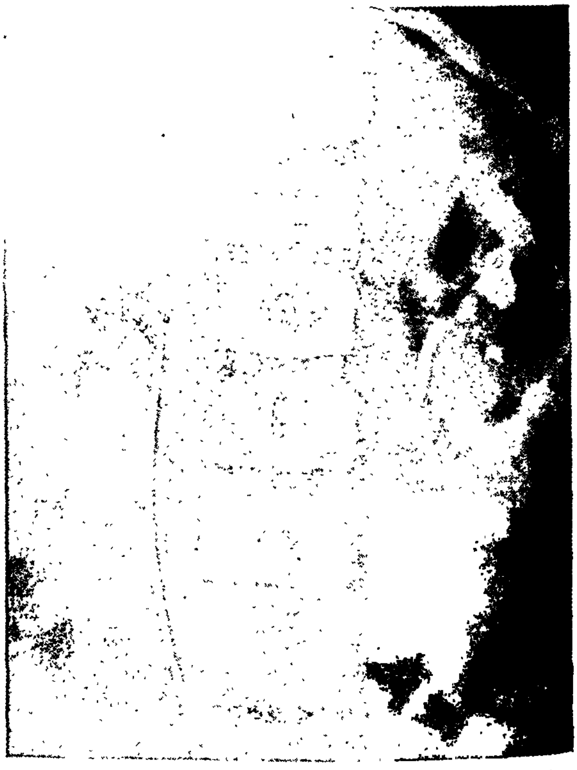

Fig. 6.—Right pyelogram showing no upper major calyx. Catheter is in an unvisualized upper duplicated segment.

In neither of these instances were the customary features of unvisualized duplicated segments present. Yet what we believe to represent an important and hitherto unpublicized characteristic was distinctly apparent: Urographically demonstrable ureteral duplication in one kidney, in the presence of unexplained symptoms and signs of urinary tract disease, suggests the presence of, and makes advisable a thorough search for, an unvisualized duplicated segment in the contralateral kidney.

Similarly in the diagnosis of ureteral ectopia in the female, the most commonly characterized feature—incontinence—may not necessarily pertain. We have seen a woman of 20 years of age with two extravesical orifices who noted urinary leakage only subsequent to delivery of her first child. Figure 8 is referable to a girl who had never suffered incontinence despite a vulvar ureteral orifice. It seems reasonable that compressive effects resulting from the abnormally elongated course of an ectopic ureter through the vesical neck and vaginal septal areas might be coupled with an ingrowth of vulvovaginal epithelial elements to cause plugging by debris and dissuade incontinent leakage of urine. Thus the lack of incontinence may not obviate the possibility of ureteral ectopia in the female.

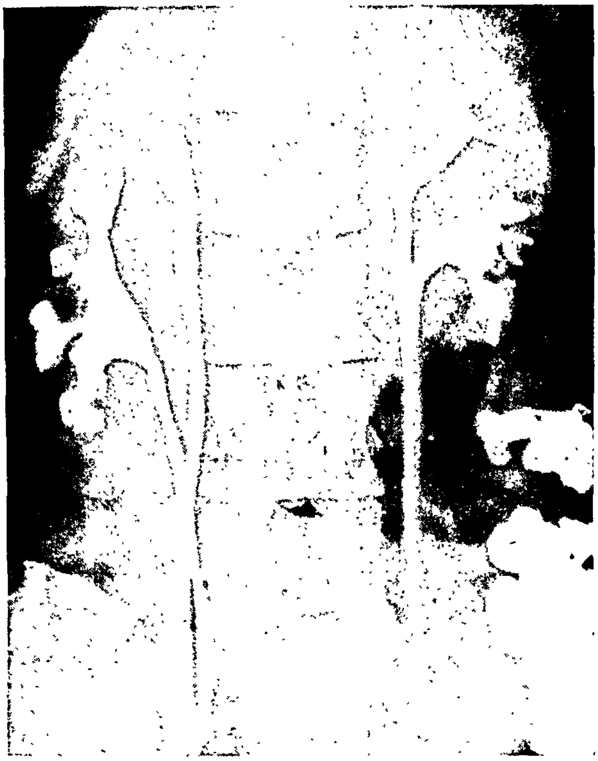

Fig. 7.—Unvisualized right upper segment, causing persistent urinary infection.

Ureteral duplication and ectopia may therefore be suspected not from the radiographic or symptomatic features characterized as diagnostic but from such tangential evidence as has been illustrated: The appearance of a duplication on one side suggesting its presence on the other; an oddly situated urethral diverticulum; or simply the frustration of repetitive, seemingly unwarranted infection being instigative of further search for an unvisualized collecting segment.

How then may unvisualized duplications be more readily diagnosed? The necessity for imprinting the characteristic radiographic and symptomatic findings firmly in the medical mind is of course essential. Equally germane to the urologic evaluation is the need for suspicion of duplication ectopia when urinary symptoms or signs remain seemingly insoluble. The urethra and bladder must routinely be inspected more carefully for a furtive accessory orifice; the insertion of bulb catheters into such openings as may be encountered, with injection of radiopaque material, should be undertaken with greater frequency. Occasionally, only voiding cystourethrograms may delineate unrecognized duplicated segments, since an ectopic urethral orifice may be more readily filled in this fashion; yet the more easily performed retrograde urethrograms can be of equal value in demonstrating ectopia. It would be redundant to emphasize the value of delayed excretory urograms in bringing out a poorly functioning duplicated segment. Any abdominal mass may conceivably represent a tremendously dilated duplication, and an important diagnostic maneuver in such an instance entails urethroscopic and vaginal examination while gentle pressure is applied to the mass; egress of urine or pus from the dilated sac may thus pinpoint the ectopic opening and allow subsequent urographic delineation.

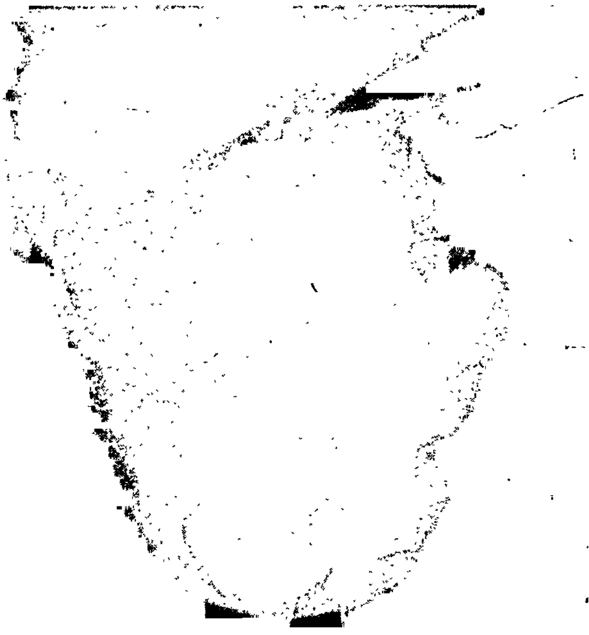

Fig. 8.—Catheter injection of hydronephrotic upper segment outlining only one loop of tortuous, dilated ureter.

Comment

The frequency with which nonvisualized duplicated segments are discovered will mirror the vigor with which they are sought and the thoroughness with which the investigation is carried out. A more general awareness of the incidence of ureteral duplication, the pathological abnormalities entailed, and the characteristic diagnostic features will undoubtedly increase the numbers discovered and afford a solution to otherwise obscure urinary tract findings.

That a ureteral duplication in one kidney should arouse suspicion as to the possibility of its occurrence in the contralateral kidney seems a feature worthy of inclusion in the list of diagnostic characteristics. Should urinary tract disease prescribe urologic study, the exclusion of duplication as etiological in such an instance would seemingly be indicated. Additionally, more general attention should be directed to the fact that an ectopic orifice outside sphincter control may not necessarily be productive of incontinence in the female.

1405 E. Ann St. (Dr. Thompson).

ADVANTAGES OF COLD CONIZATION

INTRODUCTION OF A NEW INSTRUMENT

Arthur R. Fleming, M.D., Gallipolis, Ohio

A new conization instrument makes use of an adjustable, disposable blade, the arc of which can be varied, depending on the amount of tissue to be removed; the arc is preset before the cut is started. The deepest portion of the cutting instrument is always directed toward the cervical canal. The advantages of cold conization are its diagnostic reliability, value in scientific study of the region, therapeutic efficiency, and probable high prophylactic value. Points against cold conization are fears of hemorrhage (immediate and late), cervical stenosis, and the possibility of interference with parturition. These factors become insignificant when one considers the consequences of one undiscovered malignancy. The therapeutic value of cold conization in restoring a diseased, symptomatic cervix to health is also of great importance.

It is the purpose of this paper to show that cold conization is, in general, the procedure of choice over all other forms of biopsy of the uterine cervix. The procedure would not be used in a patient with an obviously cancerous lesion, and some physicians would except the pregnant patient with a positive Papanicolaou smear. The adolescent patient who requires curettage may also be justifiably excepted.

Methods of Cervical Biopsy

Several authors have emphasized the superiority of the thick cone specimen over specimens obtained by other methods of cervical biopsy.[1] Practically all of these authors concerned themselves with the value of thick cold conization in the study, diagnosis, and/or treatment of carcinoma in situ of the cervix. Reagan and Hicks [1b] felt that punch or wedge biopsies may fail to include the focus of carcinoma in situ. They also noted a higher incidence of carcinoma in situ in those series in which a study was made of the entire cervix or the excised specimen. Scott and Reagan,[1c] in support of the thick cone biopsy, stated, "There is rarely a rational foundation for relying on incomplete or questionable diagnostic tests. When one accepts the premise that hospitalization is necessary to diagnose carcinoma in situ and early invasive cancer, instruments designed for use on ambulatory patients lose much of their appeal and value."

Four quadrant biopsy does not rule out invasive carcinoma.[2] The diagnostic failure rate with all forms of biopsy, including shallow cone specimens, varies from 16 to 22%.[3] Foote and Stewart [4] projected that if adequate four quadrant biopsies could be obtained the diagnostic failure rate could be reduced to 8%. However, the difficulties in consistently obtaining adequate four quadrant biopsies are numerable. The tissue obtained is frequently unreliable for any one or several of the following reasons: (1) absence of stroma, (2) absence of the squamocolumnar junction, (3) trauma, (4) orientation impossible, or (5) a limited sample.

Office biopsy in my practice has been replaced by the Papanicolaou smear, except in the case of a patient with an obviously cancerous lesion of the cervix. As an outpatient procedure, the Papanicolaou smear more consistently gives a general repre-

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sentation of the entire cervix than does office biopsy.[1a] The Papanicolaou smear, if used in this manner, must be considered with its generally accepted 5% chance for error.[5] Some gynecologists decide whether cold conization is necessary by the results of the Papanicolaou smear. If it is positive, cold conization is used. If it is negative, less accurate forms of biopsy are used. When anesthesia is required for dilatation and curettage, cold conization should be performed regardless of prior outpatient cellular or tissue studies. The negative Papanicolaou smear must not dictate inadequate and incomplete evaluation of the cervix.

Advantages of Cold Conization Over Other Types of Biopsy

	Cold Conization	Other Types of Biopsy
Diagnostic failure rate	<5%	22%
Prophylactic value	High	Little or none
Therapeutic value	High	None
Pathological value	High	Low
Specimen size	Adequate	Inadequate
Specimen fragmented	Infrequent	Frequent
Squamocolumnar junction	Completely represented	Incompletely represented
Endocervical canal	1 to 3 cm.	Not represented
Stroma	Adequate	Often inadequate
Orientation	Rarely impossible	Frequently impossible
Tissue trauma	Small	Great
Repeat tissue sampling required	Rarely	Frequently

Gusberg and Moore[6] and Foote and Stewart[4] have stressed the impossibility of regularly diagnosing carcinoma of the cervix by symptomatology or clinical appearance. The trigger site for carcinoma of the cervix is the squamocolumnar junction.[6] Most authors feel that carcinoma begins in or near this area and extends up the cervical canal. Therefore, to properly diagnose, study, and treat conditions in this region, the entire circumference of the squamocolumnar junction and at least 1 to 2 cm. of the endocervical canal must be represented in the biopsy. This is possible only with the thick conization specimen.

The present debate as to the significance of metaplasia and its relationship to carcinoma in situ of the cervix may in the final analysis show that cold conization is a prophylactic procedure. Carson and Gall[7] showed that metaplasia accompanied carcinoma of the cervix in 89% of their patients, this being another factor in favor of cold conization.

The therapeutic value of cold conization in restoring a diseased, symptomatic cervix to health is also of great importance. Most patients requiring dilatation and curettage are parous and, as such, frequently have some degree of chronic cervicitis. When punch biopsy is used on these patients, a poor representation of the entire cervix is obtained, and little is done for the cervicitis. If cold conization is used, the cervix is well represented pathologically and much, if not all, of the diseased portion of the cervix is removed.

The advantages of cold conization are (1) its diagnostic reliability, (2) its value in scientific study of this region, (3) its therapeutic efficiency, and (4) its probable high prophylactic value. It is difficult to show that any test or procedure is 100% accurate, but cold conization appears to give more accurate results than do other forms of cervical biopsy. The table outlines the foregoing statements and shows the advantages of cold conization over other forms of biopsy of the cervix.

Points against cold conization are fears of (1) hemorrhage, immediate and late, (2) cervical stenosis, and (3) possibility of interference with parturition. Certainly these factors become insignificant when one considers the consequences of one undiscovered malignancy.

Results of Cold Conization in Two-Hundred Sixty Patients

In an effort to evaluate these contraindications, a review of 260 patients who had undergone cold conization was instituted. In this study immediate hemorrhage unfortunately was not measured, but admittedly with the straight knife or even an angulated knife it can be troublesome. This bleeding may be due to undercutting the deep endocervical canal. This results from not being able to cut in a consistent plane to remove a true cone of tissue. Because of limited space and frequently poor descent of the cervix, one is not able to keep the tip of the knife blade pointing toward the endocervical canal. The operator may actually be cutting directly into a descending branch of the uterine artery. This could account for excessive bleeding, since the undercut portion is not excised with the specimen. The bleeding points are therefore not exposed to facilitate cauterization. This may also explain a poor end-result showing an endocervical ledge peeping through the healed cervical os, mimicking an endocervical polyp. This immediate hemorrhage, inconsistent tissue sampling, and an occasional poor end-result led me to develop the new conization instrument (fig. 1) described later.

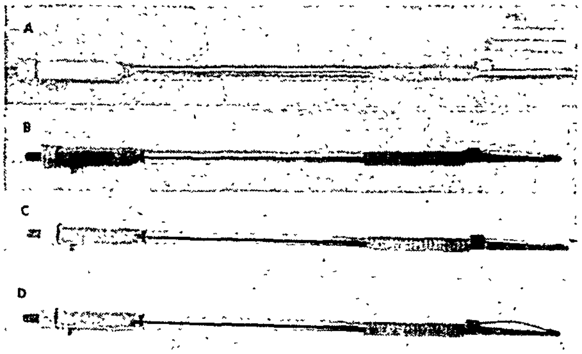

Fig. 1.—*A*, conization knife of new design, showing disposable blade. Turning knurled knob moves outside barrel forward and increases arc in blade. *B*, blade partially arced. *C*, blade at rest. *D*, blade arced for average cervix.

Late hemorrhage from the cervix was seen in only 9 (3.5%) of the 260 patients in this study. Of these nine, all returned within 10 days from the time of discharge. Bleeding occurred on the 4th postoperative day in one, on the 6th or 7th in six, and on the 10th in two. Six required rehospitalization. None of these patients required transfusion therapy; two required suturing and pack to control bleeding; three, cautery and pack; and four, pack only.

The danger of stenosis is real. It is our impression that it is particularly so in those patients requiring heavy cauterization and in postmenopausal patients. It is too early in this study to judge the exact incidence of stenosis. However, 5, or 11.1%, of the 45 patients in whom hysterectomy was required showed some degree of stenosis; fibrinous adhesions, which possibly contribute to stenosis, were noted in 10 (22.2%). Only 115 of the 215 patients not requiring hysterectomy have been followed for more than three months. In this group only four have shown stenosis as measured by a 9 F. sound. In judging the hysterectomy specimens for stenosis, no set rule or measure was used. Any specimen description mentioning an indication of postconization stenosis was counted as showing narrowing of the cervical canal. Most authors feel that adequate, periodic office dilatation rules out this complication.

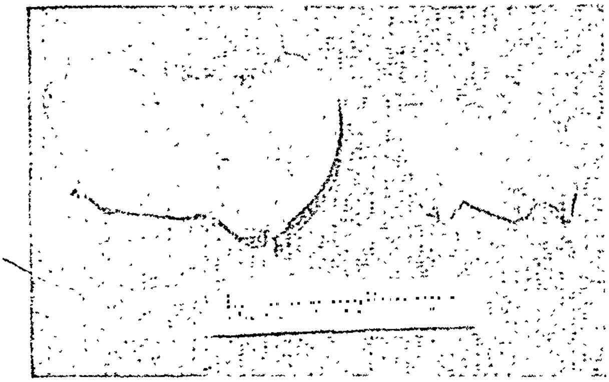

Fig. 2.—*Left*, specimen from cervix of multiparous woman. *Right*, specimen from cervix of a nulliparous woman. Both specimens represent entire circumference of squamocolumnar junction and at least 1.5 cm. of endocervical canal. Average thickness of specimens is from 6 to 8 mm.

A New Conization Instrument

The new conization instrument makes use of an adjustable, disposable blade, the arc of which can be varied, depending on the amount of tissue to be removed; the arc is preset before the cut is started. The deepest portion of the cutting instrument is always directed toward the cervical canal. This avoids undercutting and leaves all cut surfaces clearly exposed for cauterization and contact with coagulating substances (fig. 1).

Depending on the operator's desire, the cutting edge of the blade may be directed to the right or to the left. The amount of arc of the blade is preset by the gynecologist and depends on the amount of tissue to be removed. This is determined by the size of the cervix and staining qualities as outlined with 7% tincture of iodine. When necessary the cervix is dilated and conization is carried out with a sawing motion. The cut is started at 4 to 5 o'clock on the right or 7 to 8 o'clock on the left. This tends to keep the bleeding below the cutting edge and permits better visualization. Figure 2 shows two specimens obtained with use of the new knife. It is my opinion that this instrument has definitely decreased initial blood loss with cold conization and improved the end-result. Pathologically, specimens obtained with this instrument are the same as with a straight or angulated knife. The improvement is found in the diminished blood loss and the ease with which the specimen is obtained.

Prior to the use of this instrument, it was not unusual to use 10, or even 20, 4-by-4-in. sponges while performing a cold conization. Since institution of its use, it is unusual to use more than three such sponges, and frequently only one is required. To date over 60 conizations have been performed with this instrument, and only one patient has returned with late hemorrhage. This is not necessarily significant, due to such factors as improved technique, greater experience, and less initial hemorrhage, requiring less cauterization.

Comment

Several authors [1d] have mentioned that conization does not, as a general rule, interfere with pregnancy or labor. There have been only three patients in this series who have delivered after conization. None of these patients showed any difficulty with labor or delivery. There have been two abortions, in one of which cervical incompetence as a result of conization may have played a part. One cannot dismiss these complications lightly. One must weigh their consequences with not finding and/or not preventing a malignancy and with the therapeutic value of cold conization.

Reliable diagnosis and treatment demand not only adequate tissue but complete and thorough pathological examination. Close cooperation between gynecologist and pathologist will increase the incidence of positive findings and thereby benefit the patient. The pathologist prepares the conization specimen by cutting it at 2-mm. intervals about the entire circumference of the cervical os and serial blocks are examined.

In this study, 49 patients showed atypical cellular changes and/or malignancy of the cervix. Of these, 24 had a conization diagnosis of metaplasia or frank malignancy and underwent hysterectomy. Of the 14 patients who had a conization diagnosis of carcinoma in situ, 3 showed residual atypical tissue in the specimen taken at hysterectomy; of the 5 who had a diagnosis of metaplasia, none showed residual atypical findings; of the 5 who had a diagnosis of invasive carcinoma, 4 showed residual atypical findings.

This coincides with the findings of others.[1d] It also serves as a warning to those advocating thick conization as adequate treatment for carcinoma in situ. The youthful patient desiring to become pregnant after a conization diagnosis of carcinoma in situ is of course permitted to do so.

Dilatation and curettage offers an excellent opportunity to find and record as much as possible about the patient's pelvic anatomy. If we are thorough we must make every effort to (1) record an accurate pelvic examination, noting sizes in centimeters, (2) note station of descensus, (3) note support of the bladder and pelvic floor, and (4) avoid premature office cauterization prior to dilatation, curettage, and cold conization. In an effort to be even more complete, routine culdocentesis was used in 160 patients in this series. This was done to aid diagnosis and with the hope that an unsuspected malignancy might be found. The fluid obtained was sent to the laboratory for Papanicolaou smear from the sediment. To date one unsuspected Krukenberg tumor has been diagnosed in this manner.

The technique used at Holzer Hospital for dilatation, curettage, and cold conization incorporates the following principles: gentle cleansing of the vaginal canal with an antiseptic solution and catheterization followed by careful bimanual examination. The cervix is stained with 7% tincture of iodine which outlines the extent of the disease of the portio. Every effort is then made to excise this diseased area, and a margin of normal tissue is also taken. Dilatation of the cervix is performed only enough to permit use of the coning instrument. Cauterization is carried out with the lowest effective current possible. Curettage is next performed after the cervix is dilated for this purpose. The conization site is then packed with oxidized cellulose, which is left in place. Sutures to control bleeding are not used routinely. A vaginal pack is then inserted after culdocentesis, and the patient is returned to the recovery room. The pack is removed the next morning, and the patient is discharged.

Since the most likely time for hemorrhage, in this study, has been from the 7th to the 10th postoperative day, the patients are seen 7 to 10 days from discharge. On the first office visit the patient is advised to use a dilute vinegar douche twice weekly and nightly instillations of a sulfonamide cream. The majority of these patients show complete healing and absence of vaginal discharge by the third postoperative week.

If hysterectomy is anticipated the patient is placed on therapy with antibiotics. The operation is performed within 48 to 72 hours after conization, otherwise it is delayed six to eight weeks.

Summary

Cold conization is the most accurate form of cervical biopsy, its advantages being (1) its diagnostic reliability, (2) its scientific value in study of the cervix, (3) its therapeutic efficiency in treating chronic cervicitis, and (4) its probable high prophylactic value. Points against cold conization are the following possible complications: (1) hemorrhage, immediate and late, (2) cervical stenosis, and (3) possibility of interference with parturition. Cold conization is advised in any patient in whom dilatation and curettage is required, regardless of prior outpatient cellular or tissue reports. The therapeutic, prophylactic, and diagnostic value of cold conization is felt to outweigh the possible complications of the procedure. The consequence of one undiscovered malignancy also influences this opinion. A new instrument of my design, introduced for performing cold conization, diminishes immediate hemorrhage and contributes to a better end-result.

First Avenue and Cedar Street.

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The V. Mueller Instrument Company, Chicago, cooperated in the development of the instrument described in this paper. The Crescent Manufacturing Company, Freemont, Ohio, cooperated in development of the blades used in the instrument.

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CLINICAL NOTES

PSYCHOSIS RESULTING FROM MYXEDEMA

REPORT OF A CASE

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and
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In recent years, medicinal treatment of psychoses has attracted great interest on the part of the medical profession as well as the public. While attention has been focused on the use of new drugs which exert merely a palliative effect, it should not be forgotten that a specific remedy in pill form has been available for the treatment of one type of psychosis for over 70 years. The experience described in the following case report illustrates the importance of recognition and consistent treatment of this psychosis resulting from myxedema.

A 71-year-old woman was admitted to the hospital on a Saturday in late August, 1956. She had been an office patient at the Lahey Clinic on a number of occasions since 1951, when she came for help because of symptoms of diabetes mellitus. She had not been seen for nearly a year, and on this week-end her original physician and the records of her previous examinations and treatment were not available. According to the report of her family, she had shown progressive deterioration in both physical and mental health for many months. She had become so weak and unsteady when on her feet that she was bedridden much of the time. Urinary and fecal incontinence had made home care impossible. She was mentally disturbed and unable to answer questions. She resisted the efforts of the physician to make a physical examination and threatened to strike the examiner.

It was evident that the mental disorder was serious. The patient suffered from delusions and hallucinations; she was disoriented as to time and place and was sometimes unable to identify members of her family. She became agitated, noisy, and violent when disturbed by nurses or doctors. She resisted efforts to give her medication, an intravenous infusion, and blood tests. Restraints were employed to keep her in bed, but one night she was able to release the fastenings, wandered across the ward, and climbed into bed with another woman patient. It was first thought that she would have to be committed to a mental hospital; however, a thorough appraisal of the physical status led to deferment of such a decision.

The patient presented the facial appearance of myxedema. Her skin was dry and cold, her hair was thin, and her voice was harsh and low-pitched. When her previous clinic record was secured, further information became available. She had shown signs of thyroid deficiency in July, 1953, and had been advised to take desiccated thyroid. When last seen in September, 1955, she had been instructed to continue the thyroid treatment regularly. It was now learned, however, that she had failed to take the thyroid tablets as prescribed and for many months had taken none at all.

Treatment with desiccated thyroid was begun. Five days later the patient began to show some signs of improvement, and from then on a gradual change for the better occurred. She became cooperative and more alert mentally. By the time of her discharge from the hospital two weeks later, she was still slightly disoriented at times, but the improvement in her mental state was considered remarkable by both the hospital personnel and the family. Later on, we received reports that she was enjoying good health and continuing the thyroid treatment.

In January, 1958, this favorable result was confirmed on a visit to the patient's home. She was keeping house successfully for her husband and son in a four-room apartment. The family said that her memory and mental acuity were normal. She was alert and quick in actions and response. She presented the appearance of good health too, but it was thought that she still had a minimal degree of thyroid deficiency. She was advised to increase the dosage of thyroid to 1½ grains (0.1 Gm.) a day.

Comment

The occurrence of mental symptoms resulting from myxedema was first described in the report of a committee nominated on Dec. 14, 1883, by the Clinical Society of London to investigate the subject of myxedema.[1] The chairman of this committee was Dr. William Ord who, in 1877, reported on a number of cases and proposed the term "myxoedema" for the condition first described clearly four years earlier by Sir William Gull. The committee collected information from many sources and compiled a volume of more than 200 pages. Among the cases of myxedema which they described, major psychotic symptoms were reported in 15%.

Since then, a number of other reports of psychosis occurring with myxedema have appeared, but most of them have dealt with only one or two patients. Possibly the frequent occurrence of psychosis in the cases reported by the committee was the result of the fact that only patients with severe, untreated myxedema were given diagnoses at that time. An important exception is a paper published by Asher[2] in 1949. He described 14 patients who had myxedema with psychosis; 10 of these patients had been admitted to mental hospitals. Asher gave credit to a novel written by a physician for his own acquaintance with the problem. In "The Citadel," A. J. Cronin,[3] who had practiced medicine before he became a successful writer, described a dramatic scene in which young Dr. Manson was asked by

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an older doctor to help certify "a dangerous lunatic" for commitment to a mental hospital. The latter thought that his certification would be confirmed as a mere formality. "It's a bad business," he said, "but it won't take you long." However, Dr. Manson was alert to recognize the physical features of thyroid deficiency and pleaded for a trial of thyroid treatment. Complete recovery followed. Of Asher's 14 patients, dramatic and complete recovery occurred in 9, limited improvement in 2, and no change in one. Two patients died shortly after treatment was begun.

Summary

This case report describes a psychosis developing as a result of neglected myxedema. The patient might have been committed to a mental hospital with a diagnosis of senile dementia if the need for thyroid treatment had not been recognized. The manifestations of the psychosis disappeared within a few weeks after treatment of the thyroid deficiency with desiccated thyroid, illustrating the recovery that can be expected in most of these patients after employment of adequate and continuous treatment.

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ASTEROID HYALITIS

INCIDENCE OF DIABETES MELLITUS AND HYPERCHOLESTEREMIA

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Asteroid hyalitis (Benson's disease) presents a characteristic and impressive ophthalmoscopic picture generally regarded as of little clinical significance. Recently a patient with bilateral asteroid hyalitis was found to have a markedly elevated serum cholesterol level. This prompted a study of additional patients. The incidence of diabetes mellitus and hypercholesteremia found in these patients is of interest.

Duke-Elder's[1] discussion of asteroid hyalitis is excellent and may be profitably summarized here. He notes that crystalline deposits in the vitreous are relatively uncommon. Dor[2] found them 32 times in 82,732 patients and Westphal[3] 40 times in 65,000. However, these brilliant bodies were known even in preophthalmoscopic days. They were all referred to as "synchysis scintillans" until Benson[4] differentiated the white spherical bodies as "asteroid hyalitis" because they had the appearance of "hundreds and thousands of small spheres of a light cream color . . . like the stars in a clear night." Rutherford[5] reported 18 cases in seven years and found records of 56 cases in the literature. The age of affected patients averaged 60 years and varied from 30 to 84. Asteroid hyalitis was said to be commonest in the seventh and eighth decades, three times as frequent in males as in females, and usually unilateral, with only about 25% of cases affecting both eyes.

Duke-Elder further states that these bodies resemble snowballs, varying in color from a shiny white to a dull cream, and in number from a very few to innumerable. The vitreous may show some degenerative changes, but it retains its solidity so that these mobile bodies return to their original location and do not settle to the bottom of the vitreous chamber.

Those who reported chemical and histological examinations[6] of these bodies have considered them as calcium soaps (palmitate, stearate, and margarate), with sodium and calcium phosphates and chlorides and various fatty or lipoid substances. Tests for cholesterol have been said to be negative, but these have primarily consisted of treating the particles with a drop of sulfuric acid and finding no play of colors, rather than definite chemical analyses. The cause is unknown, and although associated disease has been noted from time to time (arteriosclerosis, nephritis, diabetes,[7] choroiditis, retinal hemorrhages, thrombosis),[1] this has been considered coincidental.

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Differential diagnosis concerns synchysis scintillans, which is rarer, more often bilateral, and seen frequently in younger persons (under 35 years). These are flat, angular crystals which occur in a fluid vitreous and often lie hidden below only to flash up and quickly settle on motion of the eye. Duke-Elder describes them as "presenting a beautiful and quite characteristic picture as they flash by with a gleam of burnished gold." These are considered to be cholesterol crystals, although needles of tyrosine and margarine have been reported. In summary, asteroid hyalitis is said to be more common, occurring in a substantially normal vitreous, and to consist of calcium soaps. Synchysis scintillans occurs in a fluid vitreous and is probably made up of cholesterol crystals. Neither produces symptoms or loss of vision nor has been modified by treatment.

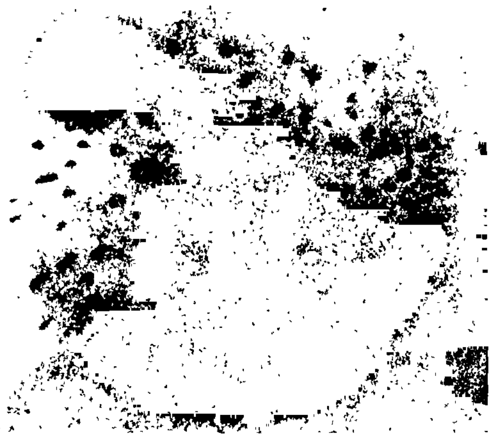

Fig. 1.—Fundus of eye, showing asteroid hyalitis (focused in vitreous).

Clinical Data

A patient (see table, case 8) with bilateral asteroid hyalitis presenting with senile cataracts was found to have a serum cholesterol level of 620 mg.% and far-advanced myxedema. Bilateral cataract extractions and thyroid therapy produced a dramatic clinical response in this patient, although no unequivocal change was noted in the vitreous opacities. In the ensuing 18 months, 18 additional patients with asteroid hyalitis have been seen (fig. 1 and 2). Analyses of blood chemistry were obtained from 16 of these patients, and the data are summarized in the table.

Comment

Of the 19 patients with asteroid hyalitis seen, 10 have been males and 9 females. The age range has been 51-83 years, with an average of 64 years. Seventeen cases were unilateral and two bilateral. Diabetes mellitus was definitely present clinically in six patients. Five other patients had blood sugar levels of over 110 mg.%, although no definite clinical diagnosis of diabetes mellitus had been made. Vascular disease was evident, with histories of one basilar artery thrombosis and four myocardial infarctions in the group. The diastolic pressure was 90 mm. Hg or over in 7 of 10 patients with recorded blood pressures. The nonprotein nitrogen level was between 35 and 60 mg.% in 10 patients. A history of cholelithiasis was noted in three patients. Macular disease was prominent, with senile macular degeneration, disciform degeneration, diabetic retinopathy, circinate retinopathy, and giant drüsen seen in a total of seven cases. Glaucoma was encountered in six patients.

The serum cholesterol levels were of particular interest. They were as follows: 100-200 mg.% (one patient, who had diabetes), 200-300 (four), 300-400 (nine), and over 400 mg.% (two).

Thomas[8] has performed several large series of control determinations of serum cholesterol level in the clinical chemistry laboratory of the Johns Hopkins Hospital and considers 150-250 mg.% as normal for this laboratory. Over 300 mg.% is considered definitely elevated. Serum cholesterol levels exceeded 300 mg.% in 11 of the 16 patients, and the average for the 16 patients was 326 mg.%. It is of interest that the second patient with bilateral asteroid hyalitis had a grossly yellow, hyperlipemic serum. The serum cholesterol level was 375 mg.% and the total serum lipids 1,040 mg.% in this instance.

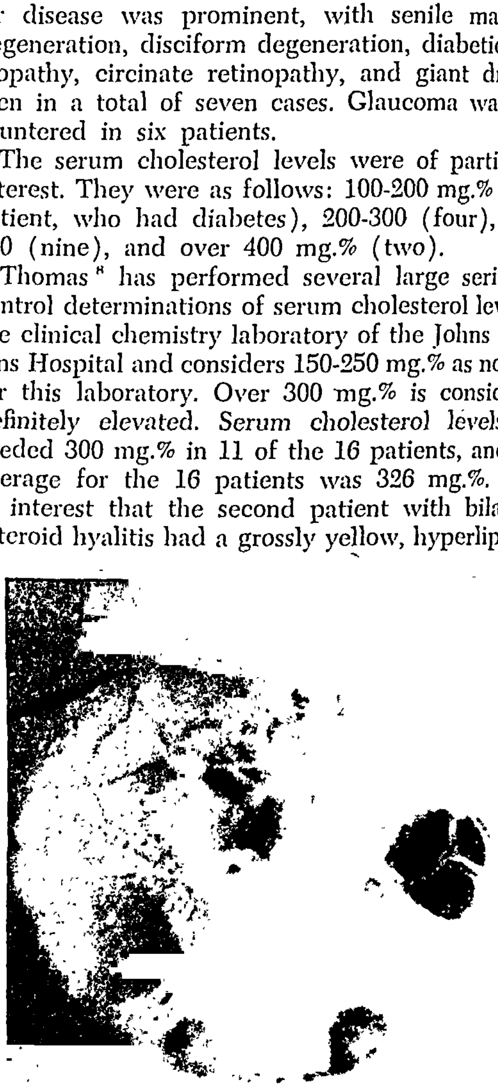

Fig. 2.—Same eye as figure 1, showing glaucomatous atrophy of optic nerve and circinate retinopathy (focused on retina).

Lens Cholesterol Level.—A cataractous lens was removed from the eye of a patient with asteroid hyalitis, and this lens weighed 187 mg. Ether extraction and subsequent analysis revealed 0.71 mg.

of cholesterol in this lens. A control senile cataract weighing 185 mg. revealed 0.63 mg. of cholesterol. This difference was not thought to be of note.

The necessity for caution in interpreting serum cholesterol levels has recently been stressed. Variability in determinations between different laboratories and fluctuations in the same individual must be considered. However, as those causes for hypercholesteremia so far found (diabetes mellitus, myxedema, hepatobiliary disease) are treatable diseases, it is suggested that patients with asteroid hyalitis have a determination of serum cholesterol level and blood sugar level.

TABLE 1.—*Laboratory Data of Patients with Asteroid Hyalitis*

Case No.	Age, Yr.	Sex	Eye	Vision	Cholesterol Level, Mg./100 Cc.	Blood Sugar Level, Mg./100 Cc.	Protein-Bound Iodine, Mcg. %*	Blood Pressure, Mm. Hg	Nonprotein Nitrogen Level, Mg./100 Cc.	Calcium Level, Mg./100 Cc.	Phosphorus Level, Mg./100 Cc.	Total Protein Level, Gm./100 Cc.	Albumin Level, Gm./100 Cc.	Globulin Level, Gm./100 Cc.	Macula	Diabetes
1	69	M	R	R 4 /200 L 20/200	130	310(2 hr. p.c.)	4.2	140/76	30	9.7	2.3	...	...	...	Circinate	Yes
2	64	M	L	R 20/200 L 20/30	400	115(fasting)	5.7	150/85	43	9.9	3.7	7.1	4.4	2.7	...	Yes
3	56	F	L	R 20/50 L 20/15	315	118(2 hr. p.c.)	...	180/100	43	...	...	...	...	...	Bilateral degeneration	Suspected
4	61	F	L	20/40 OU	425	112(fasting)	6.5	176/104	..	...	...	...	...	...	...	Suspected
5	67	M	R	R 20/30 L 20/20	203	100	...	200/100	60	10.9	4.2	7.8	4.1	3.7	...	No
6	68	F	R	R 20/40 L 5 /200	265	270	5.5	170/105	39	...	...	...	...	...	...	Yes
7	51	M	R	R 20/25 L 20/400	308	88	5.9	150/90	36	10.8	4.0	...	...	...	...	No
8	64	F	OU	R 20/200 L 20/30	620	...	1.4	160/90	..	...	...	7.6	5.9	1.7	...	No; myxedema
9	64	F	L	R L.P. L 20/20	315	117(5 hr. p.c.)	5.5	230/105	..	10.4	3.1	...	...	...	...	No; suspected thrombocytopenia
10	77	M	R	R L.P. L 2 /200	203	110	6.5	150/80	49	10.7	2.6	5.9	4.0	1.9	...	Suspected
11	61	F	L	20/200 OU	355	193	7.4	....	36	10.2	4.2	7.1	4.3	2.8	...	Yes
12	83	F	R	R 5 /200 L 20/70	308	176(½-hr. glucose tolerance test)	...	....	41	10.4	3.7	6.7	4.8	1.9	...	Suspected
13	67	M	L	R NLP L 20/20	278	208	5.7	....	35	10	2.8	7.3	4.1	3.2	...	Yes
14	..	F	..	....	365	190	...	....	28	10.8	3.8	...	...	...	...	Yes
15	69	M	OU	20/30 OU	375	80	...	....	41	10.8	4.0	8.0	4.6	3.4	...	No
16	..	M	R	....	340	100	...	....	40	11.3	3.2	7.1	4.9	2.2	...	No

* Normal = 4-8.

The blood-vitreous barrier may explain a delay in appearance of these particles in the avascular vitreous, and hence the age of the patients. Altered permeability of ocular vessels (as in diabetes and arteriosclerosis) may be a source for a chemical leak into the vitreous. However, many questions about this entity remain unanswered. The pathogenesis of asteroid hyalitis and its frequent unilaterality await further chemical studies of the vitreous.

Summary

The average serum cholesterol level in 16 patients with asteroid hyalitis was found to be 326 mg.%. Definite diabetes mellitus was found in six of these patients, and borderline carbohydrate tolerance was noted in five others. It is suggested that patients with asteroid hyalitis have determinations of serum cholesterol and blood sugar levels until a sufficiently large number of cases can be collected for definite statistical value.

102 Gerry Rd., Chestnut Hill 67, Mass.

Dr. Frederic M. Reese supplied the information for case 2 in the table.

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CHEMOTHERAPY OF CHORIOCARCINOMA AND RELATED TROPHOBLASTIC TUMORS IN WOMEN

IN THIS issue on page 845 is a stimulating report from the Endocrinology Branch of the National Cancer Institute which establishes the usefulness of the folic acid an agonist, Methotrexate, in the treatment of women with choriocarcinoma and related trophoblastic tumors. These investigators have treated 27 women with advanced metastatic trophoblastic disease with high doses of Methotrexate applied intermittently in five-day courses. Twenty-three of these very ill patients survived long enough to receive more than one course of therapy. All but one of these showed a distinct therapeutic response as reflected in a marked drop in urinary gonadotropin titer. This was accompanied by (*a*) striking regression of pulmonary metastases, (*b*) reduction in palpable and visible pelvic disease, (*c*) subsidence of objective neurological manifestations of cerebral metastases, and (*d*) general clinical rehabilitation of the patient. Five of these women continued to show no evidence of residual disease for 8 to 29 months after treatment. Unfortunately, the remainder have shown hormonal or clinical evidence of persistent disease or have subsequently developed Methotrexate resistant disease which has proved lethal despite continued therapy with Methotrexate or other carcinolytic agents.

The striking consistency of the immediate response of these patients to Methotrexate clearly establishes the remarkable initial effectiveness of this form of therapy. Nevertheless, the authors advisedly emphasize that the variability in the clinical course of women with trophoblastic tumors makes it very difficult to offer a final evaluation of the effect of Methotrexate therapy on the over-all outcome of the disease in this limited group of patients.

Through the coöperation of physicians encountering these rare cases it may be hoped that these studies may be extended and further elaborated. In all events, this report represents a unique model for quantitative assessment of therapeutic response of a malignant tumor to a specific agent. The hormone-producing tumors provide an unusual opportunity for such observations, and these investigators have offered an excellent example of the type of quantitative information so clearly needed in the evaluation of cancer chemotherapy. The practical as well as theoretical value of these studies warrants our most cordial interest and further cooperation.

NEW HORIZONS FOR THE TUBERCULIN TEST

Although the tuberculin test has always had an important place in the diagnosis and control of tuberculosis, recent developments indicate that the test will be even more useful in the decades just ahead. The tuberculosis mortality rate has shown a remarkable drop in the past 10 years, followed by a slower decline in the tuberculosis case rate. An even more significant change in the United States is the diminishing risk of acquiring new infections. In certain areas of the nation, particularly in the Northwest, entire school populations are tuberculin negative. Results of tuberculin testing in Navy recruits provide a broad view for the United States as a whole. In 1950, 9% of white recruits were classified as tuberculin reactors. Only seven years later, the proportion of reactors had decreased by one-third. The implication of such findings, substantiated by tuberculin testing programs in various parts of the country, is that new infections with virulent tubercle bacilli must be approaching the low figure of one per 1,000 persons per year.

The complacent attitude, once widely held, that tuberculous infection is an inevitable consequence of attaining adult life is now outmoded, as is the concept that positive reactors are immune and are not likely in the future to develop tuberculous disease. Indeed, current findings demonstrate that most new cases of tuberculosis occur in persons who were infected many years ago. This situation points up the significance of a positive reaction to tuberculin as an indicator of substantial disease risk, and emphasizes the necessity to *identify* the tuberculin reactors in the population, thus delineating the areas and groups where tuberculosis control efforts can be most effectively applied.

The dramatic change in the tuberculosis infection rate and the constantly diminishing proportion of positive reactors in the population have important implications for medical and public health practice.

In differential diagnosis, the pediatrician is no longer the only advocate of tuberculin testing. Now that many adults are negative reactors, the tuberculin test should be a routine part of every examination when pulmonary pathology is suspected.

The method of choice in administering the tuberculin test is the intracutaneous (Mantoux) test. Indeed, it has been well established in numerous trials that a Mantoux test with a dose of tuberculin equivalent to 0.0001 mg. of the international standard purified protein derivative (PPD-S) will produce a reaction in practically all cases of proved tuberculosis with a minimum of false negatives. It is customary in interpreting the test to regard reactions of 6 mm. or more of induration as positive. There is now some evidence, however, that a better dividing point might be 8 or 10 mm., since almost all persons with tuberculosis have reactions this size or larger, and smaller reactions may be nonspecific.

Properly administered and interpreted, the tuberculin test can promptly rule out the tubercle bacillus as the etiological agent in many instances and allow a more diligent and fruitful search for tuberculosis in positive reactors. Wider use of this readily available and inexpensive test should result in considerable saving of time and money to both patient and physician. The need for the patient to return for a reading of his test may well be a blessing in disguise. All too often, patients with serious pulmonary pathology have only the symptoms and signs of a superimposed acute infection. Obtaining temporary relief, they see no need for a return visit until progression of the underlying disease has become manifest. A test to be read three days later might improve the follow-up of chest diseases seen in office practice.

The continued decline in the proportion of reactors in the population will also increase the usefulness of tuberculin testing for tuberculosis case finding in various community groups. Numerous studies have shown that tuberculosis is heavily concentrated among reactors to tuberculin, particularly among those with the strongest reactions. In many population groups, it is already feasible to offer chest x-rays and other diagnostic procedures only to the small group of positive reactors.

With therapeutic agents which can reverse the infectiousness of nearly all cases, with adequate facilities for isolation, and with the help of the tuberculin test to concentrate diagnostic, case finding, and therapeutic efforts where they will be most effective, the odds against the tubercle bacillus now are greater than ever before. In most areas of the United States today, it should be possible to set our sights not merely for the control of tuberculosis but toward its eradication. As this goal is approached, the identification of the small minority of the population among whom infection still persists will become increasingly important. The tuberculin test can already perform this function with considerable precision, and recent studies indicate that even better testing products and techniques will shortly become available.

IATROGENIC DISEASES IN CHILDREN

It has often been said that there is no gain without a relative loss. This is as true in medicine as in other fields. The fact that the physician in treating his patient can unwittingly cause disease which may be worse than the one being treated is unfortunate, but the only thing that is worse than making a mistake is not to correct it. In the case of retrolental fibroplasia,[1] now mercifully rare, a great deal of damage was done before the cause was recognized. Premature babies who needed oxygen were treated more generously than was needed, but *once this fallacy was recognized an end was written* to the chapter. Kernicterus presented a similar situation. It often developed in premature infants unassociated with any blood incompatibility on the 6th or 7th day of life rather than on the 2nd or 3rd day as in full-term infants. It has been shown that these premature infants had been given vitamin K, or in a few cases sulfisoxazole, in too large doses.

In treating infants overdosage must be constantly guarded against. Clark's, Cowling's, Fried's, and Young's rules for arriving at a safe fraction of the adult dose for a child may serve as a convenient guide, but none are as safe as prescribing on the basis of milligrams per kilogram of body weight. Hypervitaminosis from an overdosage of vitamins A and D as well as K may occur. Some infants have less than average tolerance for vitamin D and on average or slightly greater than average doses may show symptoms of hypercalcemia. Hypercalcemia may also be caused by giving milk of magnesia daily for a long time. Fortunately these conditions are readily reversible. The sulfonamides may cause crystalluria, hematuria, and even anuria. Antibiotics by suppressing one group of organisms may leave a clear field for others which in some cases may be harder to control than the organisms originally being combated. This is particularly unfortunate in cases where these drugs were used prophylactically or without definite and valid indications.

In treating any infant the prolonged use of any drug should be avoided if possible. Great care should be exercised in determining the required dosage, and overdosage should be avoided at all times. Before any drug is given it is essential to know what undesirable side-effects may be expected and to make frequent checks so that these may be recognized early. Parents should be instructed to report evidences of hypersensitivity and other complications of treatment promptly so that the treatment may be modified in time to prevent undue suffering.

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ORGANIZATION SECTION

REPORT OF THE SECTIONS OF THE SCIENTIFIC ASSEMBLY

SAN FRANCISCO MEETING, JUNE 23-27, 1958

SECTION ON ANESTHESIOLOGY

The Section on Anesthesiology held its first meeting jointly with the Section on Surgery, General and Abdominal, on Wednesday morning, June 25, in Veterans War Memorial Auditorium, with meetings on Wednesday and Thursday afternoons, June 25 and 26, in Masonic Temple. Fourteen papers were presented in addition to a symposium and panel discussion on "Spinal Anesthesia" with six papers.

At the business meeting on Wednesday, June 25, the Section Delegate, Dr. Edward B. Tuohy, reported on activities of the House of Delegates. The participants in the Scientific Exhibit from the Section on Anesthesiology were also introduced.

At the business meeting on Thursday, June 26, the following officers were elected: Chairman, Dr. John Adriani, New Orleans; Vice-Chairman, Dr. Edward T. Lawless, Upper Montclair, N. J.; Secretary, Dr. Vincent J. Collins, New York; Assistant Secretary, Dr. Kenneth K. Keown, Columbia, Mo.; Delegate, Dr. Joseph H. Failing, Los Angeles; Alternate Delegate, Dr. Ralph S. Sappenfield, Miami, Fla.; and Representative to Scientific Exhibit, Dr. Edwin L. Rushia, Augusta, Ga.

The Section sponsored eight exhibits in the Scientific Exhibit of which one received a certificate of merit and one honorable mention. In addition, the Section participated in the demonstrations on perinatal problems.

SECTION ON DERMATOLOGY

The Section on Dermatology met in California Masonic Memorial Temple on Tuesday, Wednesday and Thursday afternoons, June 24, 25, and 26. Thirteen papers were presented as listed in the program, together with a panel discussion on "Pruritus Ani et Vulvae and Other Dermatoses of the Anogenital Area."

At the business meeting on Tuesday, June 24, reports were presented from the Editor of *A. M. A. Archives of Dermatology* which was read by the Secretary; from Dr. Stanley E. Huff, Section Representative to the Scientific Exhibit; from the American Board of Dermatology which was read by Dr. Walter Lobitz, Assistant Secretary of the Board; from Dr. Winfred A. Showman, Section Delegate; from Dr. Donald Birmingham, Chairman, Industrial Dermatoses Committee; and from the Nominating Committee which was read by Dr. J. Walter Wilson.

Dr. Earle D. Osborne, Secretary General of the International Congress of Dermatology, discussed plans for the Congress in Washington in 1962.

At the business meeting on Wednesday, June 25, the following officers were elected: Chairman, Dr. Clarence S. Livingood, Detroit; Vice-Chairman, Dr. Rudolph H. Ruedemann, Albany, N. Y.; Secretary, Dr. Edward P. Cawley, Charlottesville, Va.; Assistant Secretary, Dr. Harry L. Arnold Jr., Honolulu, Hawaii; Delegate, Dr. Winfred A. Showman, Tulsa, Okla.; Alternate Delegate, Dr. Maurice J. Costello, New York; and Representative to Scientific Exhibit, Dr. Stanley E. Huff, Evanston, Ill.

The second paper which was scheduled on Wednesday's program was the Distinguished Lecture in Dermatology to be delivered by Dr. Francis E. Senear. Since Dr. Senear died early in the year, the Chairman asked for a period of silence at this time in the program in memory of the Section's distinguished friend and colleague.

The Section sponsored six exhibits in the Scientific Exhibit. There were two awards consisting of a certificate of merit and an honorable mention.

SECTION ON DISEASES OF THE CHEST

The Section on Diseases of the Chest held its first meeting on Wednesday morning, June 25, in California Masonic Temple. On Thursday morning, June 26, it met jointly with the Section on Radiology, and on Friday morning, June 27, it met jointly with the Section on General Practice in the Civic Auditorium in Polk Hall.

At the business meeting on Wednesday morning, June 25, the following officers were elected: Chairman, Dr. M. Jay Flipse, Miami, Fla.; Vice-Chairman, Dr. Seymour M. Farber, San Francisco; Secretary, Dr. Burgess L. Gordon, Albuquerque, N. Mex.; Delegate, Dr. J. Winthrop Peabody Sr., Washington, D. C.; Alternate Delegate, Dr. John P. Medelman, St. Paul; and Representative to Scientific Exhibit, Dr. Edwin R. Levine, Chicago.

The Section sponsored 12 exhibits in the Scientific Exhibit. There were four awards consisting of the Billings Gold Medal, a certificate of merit, and two honorable mentions. In addition the Section sponsored the Special Exhibit on Pulmonary Function under the chairmanship of Dr. George R. Meneely, Nashville, Tenn.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

The Section on Experimental Medicine and Therapeutics met in the High School of Commerce on Wednesday and Thursday mornings, June 25 and 26, and jointly with the Section on Internal Medicine on Thursday afternoon.

At the business meeting on Thursday morning, June 26, the following officers were elected: Chairman, Dr. Charles H. Burnett, Chapel Hill, N. C.; Vice-Chairman, Dr. Jack D. Myers, Pittsburgh; Secretary, Dr. Elliot V. Newman, Nashville, Tenn.; Delegate, Dr. Edgar V. Allen, Rochester, Minn.; and Representative to Scientific Exhibit, Dr. Joseph F. Ross, Los Angeles.

The Section sponsored 22 exhibits in the Scientific Exhibit. There were four awards consisting of the Hektoen Gold Medal, a certificate of merit, and two honorable mentions.

SECTION ON GASTROENTEROLOGY AND PROCTOLOGY

The Section on Gastroenterology and Proctology met Tuesday, Wednesday, and Thursday afternoons, June 24, 25, and 26, in the Veterans War Memorial Auditorium.

At the business meeting on Wednesday afternoon, June 25, the following officers were elected: Chairman, Dr. A. W. Martin Marino, Brooklyn, N. Y.; Vice-Chairman, Dr. Joseph Kirsner, Chicago; Secretary, Dr. Wm. H. Dearing, Rochester, Minn.; Secretary-Elect, Dr. George Gordon McHardy, New Orleans; Delegate, Dr. Stuart T. Ross, Garden City, N. Y.; Alternate Delegate, Dr. Neil Swinton, Boston; and Representatives to Scientific Exhibit, Dr. Willard H. Bernhoft, Buffalo; and Dr. George Gordon McHardy, New Orleans.

The Section sponsored 22 exhibits in the Scientific Exhibit. There were three awards consisting of a certificate of merit and an honorable mention and, in addition, one exhibit contained material for which a certificate of merit was given for outstanding medical photography.

SECTION ON GENERAL PRACTICE

The Section on General Practice met on Wednesday, Thursday, and Friday mornings, June 25, 26, and 27, in Polk Hall, Civic Auditorium, the last meeting being held jointly with the Section on Diseases of the Chest.

At the business meeting on Wednesday morning, June 25, Dr. Lowry H. McDaniel, Tyronza, Ark., was named to organize an Association of Past Officers of the Section to aid the Executive Committee in an advisory capacity as well as to stimulate interest in the work of the Section. A report was rendered by Dr. Lester D. Bibler, the Section Delegate. The following resolution was adopted:

Whereas, The future of the family physician is important both to organized medicine and the American people, and

Whereas, Family practice in recent years has attained the status of a specialty, and

Whereas, Considerable confusion exists as to which group in the profession shall fulfill the function of the family physician of the future, and

Whereas, There is no existing standardizing or certifying agency to encourage and foster the preparation of physicians in the field of general medicine, and

Whereas, It is evident that without the goal of Board Certification in view all too few young physicians are availing themselves of general practice residencies, and

Whereas, Medical school administrators and educators have expressed the need for such standardization and certification in selecting faculties, and

Whereas, The House of Delegates of the American Academy of General Practice has adopted a resolution recommending study and cooperation with the Section on General Practice of the AMA directed toward the formation of a Board of General Practice, and

Whereas, These facts have led the Executive Committee of the Section on General Practice to the firm conclusion that the establishment of a Board of General Practice for the examination and certification of family physicians in general medicine and surgery as a special field of practice should be created as promptly as possible, and that proper study be directed toward this; therefore, be it

Resolved, That the Section on General Practice of the American Medical Association in cooperation with the American Academy of General Practice should proceed. with all de[illegible] speed toward the creation of a Board of General Prac[illegible] subject to its approval by the Advisory Board of Medical Specialties and the Council on Medical Education and Hospitals of the AMA; and be it further

Resolved, That such a certifying board should retain the principle of re-evaluation of diplomates at stated intervals consistent with the requirements of the AAGP for continuation study for maintenance of membership.

At the business meeting on Thursday morning, June 26, the following officers were elected: Chairman, Dr. S. A. Garlan, New York; Vice-Chairman, Dr. Thomas Goldsmith, Greenville, S. C.; Secretary, Dr. Eugene I. Baumgartner, Oakland, Md.; Delegate, Dr. Lester D. Bibler, Indianapolis; Alternate Delegate, Dr. Milton Casebolt, Kansas City, Mo.; and Representative to Scientific Exhibit, Dr. I. Phillips Frohman, Washington, D. C.

Credit in category I was given by the American Academy of General Practice to its members who attended the meeting.

The Section sponsored 20 exhibits in the Scientific Exhibit, 3 of which received awards consisting of a certificate of merit and two honorable mentions. The Section also sponsored the demonstrations on physical examinations for physicians "A P. E. for every M.D.," under the chairmanship of Dr. Charles E. McArthur, Olympia, Wash.

SECTION ON INTERNAL MEDICINE

The Section on Internal Medicine met in the High School of Commerce on Tuesday, Wednesday, and Thursday afternoons, June 24, 25, and 26, the last meeting being held jointly with the Section on Experimental Medicine and Therapeutics.

At the business meeting on Wednesday, June 25, attention was called to the coming Centennial of the Section in 1959, with discussion of the program.

The following officers were elected: Chairman, Dr. William B. Bean, Iowa City; Vice-Chairman, Dr. Henry D. Brainerd, San Francisco; Secretary, Dr. R. H. Kampmeier, Nashville, Tenn.; Delegate, Dr. Charles T. Stone Sr., Galveston, Texas; Alternate Delegate, Dr. Carter Smith, Atlanta, Ga.; and Representative to Scientific Exhibit, Dr. Henry T. Ricketts, Chicago.

There were no vacancies on the Board of Trustees for the Billings Fund. Dr. Francis Wood, Philadelphia, was chosen Billings Lecturer for 1959.

The Section sponsored 24 exhibits in the Scientific Exhibit. There were four awards consisting of the Billings Bronze Medal, a certificate of merit, and two honorable mentions.

SECTION ON LARYNGOLOGY, OTOLOGY, AND RHINOLOGY

The Section met in Masonic Temple, Wednesday, Thursday, and Friday mornings, June 25, 26, and 27, and all papers on the program were read and discussed as scheduled.

The recent death of Dr. Hugh Kuhn, Secretary of the Section since June, 1953, was noted with the proper observances.

At the business meeting on Friday, June 27, the following officers were elected: Chairman, Dr. Victor R. Alfaro, Washington, D. C.; Vice-Chairman, Dr. Harold F. Schuknecht, Detroit; Secretary, Dr. Walter E. Heck, San Francisco; Delegate, Dr. Gordon F. Harkness, Davenport, Iowa; Alternate Delegate, Dr. Dean M. Lierle, Iowa City; and Representative to Scientific Exhibit, Dr. Walter H. Maloney, Cleveland.

The Section sponsored 13 exhibits in the Scientific Exhibit. There were three awards, consisting of a certificate of merit and two honorable mentions.

SECTION ON MILITARY MEDICINE

The Section on Military Medicine met in Civic Auditorium on Wednesday, Thursday, and Friday mornings, June 25, 26, and 27.

At the business meeting on Thursday, June 26, the following officers were elected: Chairman, Dr. Alphonse McMahon, St. Louis, Mo.; Vice-Chairman, Dr. George H. Houck, Palo Alto, Calif.; Secretary, Dr. Charles H. Bramlitt, Washington, D. C.; Delegate, Dr. Charles L. Leedham, Cleveland; Alternate Delegate, Dr. Charles P. Campbell, Hackensack, N. J.; and Representative to Scientific Exhibit, Dr. Robert V. Schultz, Washington, D. C.

Dr. Paul W. Schafer, Washington, D. C., was appointed as consultant for audiovisual matters to aid the Secretary in developing the 1959 program.

Point credit was given to active and reserve officers of the Air Force, Army, and Navy who attended the Section meetings.

The Section sponsored 13 exhibits in the Scientific Exhibit. There were three awards presented, consisting of a certificate of merit and two honorable mentions. In addition, the Section cooperated in the group of exhibits on the history of medicine.

SECTION ON MISCELLANEOUS TOPICS

Session on Medical Professional Liability.—The session was held in Masonic Temple on Tuesday afternoon, June 24, under the chairmanship of Dr. Joseph F. Sadusk, Oakland, Calif. Four papers were presented as listed in the program.

Session on Traffic Accidents.—The session met in Masonic Temple on Wednesday afternoon, June 25. Dr. Fletcher D. Woodward was chairman. Six papers were presented, followed by a panel discussion on the prevention of motor vehicle accidents.

Session on Injury in Sports.—The session was held in Mark Hopkins Hotel on Thursday morning, June 26, with Dr. Allan J. Ryan, Meriden, Conn., as chairman. The program consisted of a symposium of seven papers.

Session on Allergy.—The session met on Friday morning, June 27, in Civic Auditorium. Dr. Orval A. Withers, Kansas City, Mo., and Dr. William B. Sherman, New York, co-chairman, presided over the session. Eight papers were presented as listed on the program, followed by a panel on asthma.

There were 12 exhibits in the Scientific Exhibit on various subjects from the Section on Miscellaneous Topics, one of which received a certificate of merit and one an honorable mention.

SECTION ON NERVOUS AND MENTAL DISEASES

The Section on Nervous and Mental Diseases met in Masonic Temple on Wednesday, Thursday, and Friday mornings, June 25, 26, and 27. Eighteen papers were presented as listed in the program.

At the business meeting on Thursday, June 26, the following officers were elected: Chairman, Dr. Kenneth E. Appel, Philadelphia; Vice-Chairman, Dr. E. S. Gurdjian, Detroit; Secretary, Dr. A. L. Sahs, Iowa City; Delegate, Dr. F. M. Forster, Washington, D. C.; Alternate Delegate, Dr. Karl O. Von Hagen, Los Angeles; Representative to Scientific Exhibit, Dr. Benjamin Boshes, Chicago; and Representative to American Board of Psychiatry and Neurology, Dr. A. B. Baker, Minneapolis.

The Section sponsored 14 exhibits in the Scientific Exhibit, of which one received a certificate of merit and two honorable mentions.

SECTION ON OBSTETRICS AND GYNECOLOGY

The Section on Obstetrics and Gynecology met in Civic Auditorium on Tuesday, Wednesday, and Thursday afternoons, June 24, 25, and 26. The first session was held jointly with the Section on Radiology. Fourteen individual papers were presented as well as a Symposium on Radiation Hazards with three papers.

At the business meeting on Thursday, June 26, the following resolution was passed:

WHEREAS, The American Medical Association is one of the component members of the Joint Commission on Accreditation of Hospitals, and

WHEREAS, The Section on Obstetrics in one of the largest and oldest component sections of the American Medical Association, and

WHEREAS, Obstetrics and Gynecology is a major specialty in the practice of medicine, and occupies a major role in medical activities carried out in hospitals, and

WHEREAS, Obstetricians and gynecologists are vitally concerned with all aspects of hospital standards in regard to services, accreditations, and training; therefore, be it

Resolved, That the Section on Obstetrics and Gynecology petitions the Board of Trustees of the American Medical Association for representation on the Joint Commission on Accreditation of Hospitals through the American Medical Association membership on said Commission.

Plans were instituted for the Centennial celebration of the Section in 1959, and officers were elected as follows: Chairman, Dr. Nicholson J. Eastman, Baltimore; Vice-Chairman, Dr. Curtis J. Lund, Rochester, N. Y.; Secretary, Dr. Keith P. Russell, Los Angeles; Delegate, Dr. Ralph E. Campbell, Madison, Wis.; Alternate Delegate, Dr. Roy J. Heffernan, Brookline, Mass.; and Representative to Scientific Exhibit, Dr. Frederick H. Falls, Oak Park, Ill.

The Section sponsored 10 exhibits in the Scientific Exhibit, one of which received a certificate of merit and one an honorable mention. The Section also participated in the Exhibit Symposium on Perinatal Problems and the demonstrations on Resuscitation of the Newborn.

SECTION ON OPHTHALMOLOGY

The Section on Ophthalmology met in the Fairmont Hotel on Tuesday, Wednesday, and Thursday afternoons, June 24, 25, and 26. Nineteen papers were presented as listed in the program. The Section sponsored five sessions of the Association for Research in Ophthalmology, at which 39 additional papers were presented.

At the business meeting on Wednesday, the minutes of the Section for 1957 were approved as published in THE JOURNAL of the A. M. A. Reports of the following representatives from the Section were accepted and submitted to the Board of Trustees for approval:

American Committee on Optics and Visual Physiology
American Board of Ophthalmology
National Registry of Ophthalmic Pathology
Scientific Exhibit
Museum of Ophthalmic History
National Conference on Medical Nomenclature
College of Surgeons, Board of Governors
American Orthoptic Council
Lucian Howe Fund
Research in Ophthalmology and Blindness
Delegate to Pan American Congress of Ophthalmology
Eye Banks
Delegate to House of Delegates
Program Committee

The following appointments, recommended by the Executive Committee, were approved by the Section:

Dr. Gerald Fonda reappointed to the American Committee on Optics and Visual Physiology; Dr. Harold G. Scheie appointed to the American Board of Ophthalmology; Dr. A. B. Reese reappointed to the National Registry of Ophthalmic

Pathology; Drs. Burton Chance, Hans Barken, and Frederick C. Cordes reappointed to the Museum of Ophthalmic History; Dr. Conrad Berens reappointed to the National Conference of Medical Nomenclature; Dr. Edmond L. Cooper reappointed to the American Orthoptic Council; Drs. A. D. Ruedemann and Michael J. Hogan, reappointed to the National Committee for Research in Ophthalmology and Blindness; Dr. James H. Allen reappointed as delegate to the Pan American Association of Ophthalmology;; Drs. F. Phinizy Calhoun Jr. and Ramon Castroviejo reappointed to the Committee on Eye Banks; Drs. Gordon M. Bruce, Arthur G. DeVoe, Lorand V. Johnson, A. Edward Maumenee, Frank W. Newell, T. E. Sanders, and Fred M. Wilson reappointed and Dr. John E. Harris appointed to the Program Committee.

The Section nominated three members, Drs. Arthur Gerard DeVoe, Wendell L. Hughes, and Orwyn H. Ellis for selection of one to serve on the Board of Governors of the American College of Surgeons for the term 1959 to 1962.

Dr. A. D. Ruedemann spoke in behalf of the National Medical Foundation for Eye Care, urging its support. Dr. Trygve Gundersen read the report of the Knapp Testimonial Fund Committee which was accepted by the Section.

Dr. Arthur Bedell presented a motion to thank Dr. Parker Heath for his work on the Knapp Testimonial Fund which was passed.

The following officers were elected: Chairman, Dr. Frank B. Walsh, Baltimore; Vice-Chairman, Dr. Philip M. Lewis, Memphis, Tenn.; Secretary, Dr. Harold G. Scheie, Philadelphia; Assistant Secretary, Dr. Henry F. Allen, Boston; Delegate, Dr. Ralph O. Rychener, Memphis, Tenn., Alternate Delegate, Dr. W. Howard Morrison, and Representative to Scientific Exhibit, Dr. Frank W. Newell, Chicago.

Members of the Committee for the Award of the Knapp Medal were elected as follows: Drs. Charles K. W. Ascher, Chairman; Derrick Vail, and Francis Heed Adler.

The $250 prize for the best scientific exhibit was awarded to Drs. L. K. Garron, M. J. Hogan, W. K. McEwen, and M. L. Feeney, San Francisco, for the exhibit on "Electron Microscopy of Ocular Tissue."

The $250 prize for the best paper was awarded to Dr. Warren A. Wilson, Los Angeles, for his paper on "Galactosemia with Associated Cataracts in Children" judged on the basis of originality and presentation.

The Prize Medal in Ophthalmology was awarded to Dr. Peter C. Kronfeld, Chicago, for his many contributions to ophthalmology.

The Section sponsored 13 exhibits in the Scientific Exhibit, of which one received a certificate of merit and two honorable mentions.

SECTION ON ORTHOPEDIC SURGERY

The Section on Orthopedic Surgery met in the Mark Hopkins Hotel on Tuesday, Wednesday, and Thursday afternoons, June 24, 25, and 26, and jointly with the Section on Physical Medicine on Friday morning, June 27. Seventeen individual papers were presented as listed in the program, in addition to a symposium on "Diagnosis and Treatment of Pain in the Shoulder and Arm" with five papers.

At the business meeting on Tuesday, June 24, the report of the Section Delegate, Dr. N. Relton McCarroll was received. The following resolution was passed for submission to the House of Delegates:

WHEREAS, The Trustees of the American Medical Association have seen fit to publish a manual on the evaluation of injuries; and

WHEREAS, The said manual carries with it the implied approval of the American Medical Association; and

WHEREAS, The aforementioned manual will be freely quoted in medicolegal controversies; and

WHEREAS, In the opinion of the Section on Orthopedic Surgery of the American Medical Association the said manual is in some respects unacceptable; be it therefore

Resolved, That in the near future a revision of the aforementioned manual be made and that such a revision, together with all future American Medical Association publications which touch upon the interests of the individual Sections, be made with the cooperation of the interested Section or Sections through the appointment by them of committees whose function shall be to assist in the guidance and editing of such publications."

At the business meeting on Thursday, June 26, Dr. McCarroll reported that the above resolution had been referred to the Board of Trustees for review.

The following officers were elected: Chairman, Dr. Lenox D. Baker, Durham, N. C.; Vice-Chairman, Dr. H. Herman Young, Rochester, Minn.; Secretary, Dr. Robert J. Joplin, Boston; Assistant Secretary, Dr. John C. Wilson Jr., Los Angeles; Delegate, Dr. H. Relton McCarroll, St. Louis, Mo.; Alternate Delegate, Dr. Harry R. Walker, Oakland, Calif.; and Representative to Scientific Exhibit, Dr. J. I. Kendrick, Cleveland.

The Section sponsored 12 exhibits in the Scientific Exhibit. There were two awards, a certificate of merit and an honorable mention.

SECTION ON PATHOLOGY AND PHYSIOLOGY

The Section on Pathology and Physiology met in Civic Auditorium on Tuesday, Wednesday, and Thursday afternoons, June 24, 25, and 26, the last session being held jointly with the Section on Urology. Nineteen papers were presented, as listed in the program, in addition to which there was a panel discussion on "Carcinoma of the Lower Urinary Tract."

At the business meeting on Wednesday, June 25, the following officers were elected: Chairman, Dr. Thomas M Peery, Washington, D. C.; Vice-Chairman, Dr. Russell L Holman, New Orleans; Secretary, Dr. Hugh A. Edmondson Los Angeles; Delegate, Dr. Lall G. Montgomery, Muncie Ind.; Alternate Delegate, Dr. Oscar Hunter Jr., Washington D. C.; and Representative to Scientific Exhibit, Dr. Samuel A. Levinson, Chicago.

The Section sponsored the Special Exhibit on Fresh Tissue Pathology, as well as 13 individual exhibits. Among the awards were the Hektoen Silver Medal, a certificate of merit, and an honorable mention.

SECTION ON PEDIATRICS

The Section on Pediatrics met in Masonic Temple on Wednesday and Thursday mornings, June 25 and 26, and jointly with the Section on Preventive Medicine on Thursday afternoon, June 26. There were 15 individual papers presented, as well as a symposium on "Competitive Athletics in Children" with five papers.

At the business meeting on Thursday morning, June 26, the following officers were elected: Chairman, Dr. Wyman C. C. Cole Sr., Detroit; Vice-Chairman, Dr. E. Revere Cole, Sacramento, Calif.; Secretary, Dr. Arild E. Hansen, Galveston, Texas; Delegate, Dr. Walter B. Stewart, Atlantic City, N. J., Alternate Delegate, Dr. Russel Mapes, Beverly Hills, Calif., and Representative to Scientific Exhibit, Dr. F. Thomas Mitchell, Memphis, Tenn.; Custodian of Abraham Jacobi Fund, Dr. Hugh Dwyer, Kansas City, Mo.

The Section participated in the Exhibit Symposium on Perinatal Problems in the Scientific Exhibit, as well as in the demonstrations on Resuscitation in the Newborn. There were 15 exhibits sponsored by the Section of which one received a certificate of merit and one an honorable mention.

SECTION ON PHYSICAL MEDICINE

The Section on Physical Medicine met in Masonic Temple on Wednesday and Thursday mornings, June 25 and 26, and in Mark Hopkins Hotel jointly with the Section on Orthopedic Surgery on Friday morning, June 27. Eleven papers were presented as listed in the program, together with a symposium on "Diagnosis and Treatment of Pain in the Shoulder and Arm" with five papers.

At the business meeting on Wednesday, June 25, the following officers were elected: Chairman, Dr. Arthur L. Watkins, Boston; Vice-Chairman, Dr. Lewis A. Leavitt, Houston, Texas; Secretary, Dr. Earl C. Elkins, Rochester, Minn., Delegate, Dr. Walter J. Zeiter, Cleveland; Alternate Delegate, Dr. A. B. C. Knudson, Washington, D. C.; and Representative to Scientific Exhibit, Dr. Harold Dinken, Denver.

The Section nominated the following five diplomates to the American Board of Physical Medicine and Rehabilitation, Drs. Arthur L. Watkins, Boston; Clarence W. Dail, Los Angeles; Thomas F. Hines, New Haven, Conn.; James W. Rae Jr., Ann Arbor, Mich.; and Arthur A. Rodriquez, Chicago, for election of one by said Board to a six-year term to fill the expired term on Dec. 31, 1958, of the Section representative on the American Board of Physical Medicine and Rehabilitation.

The Section sponsored eight exhibits in the Scientific Exhibit of which one received a certificate of merit and one an honorable mention.

SECTION ON PREVENTIVE MEDICINE

The Section on Preventive Medicine met in Masonic Temple on Tuesday afternoon, June 24, jointly with the American Academy of Occupational Medicine; on Wednesday afternoon, June 25, jointly with the Aero Medical Association; and on Thursday afternoon, June 26, jointly with the Section on Pediatrics. In addition to seven papers, there was a symposium on "Occupational Medicine for the Private Practitioner" with five papers and a symposium on "Competitive Athletics in Children" with five papers.

At the business meeting on Tuesday, June 24, the following officers were elected: Chairman, Dr. Robert A. Kehoe, Cincinnati; Vice-Chairman, Dr. Wilford F. Hall, Dayton, Ohio; Secretary, Dr. Frank Princi, Cincinnati; Delegate, Dr. Rutherford T. Johnstone, Los Angeles; and Representative to Scientific Exhibit, Dr. Paul A. Davis, Akron, Ohio.

The Section sponsored 11 exhibits in the Scientific Exhibit of which one received a certificate of merit and one an honorable mention.

SECTION ON RADIOLOGY

The Section on Radiology met in Polk Hall, Civic Auditorium, on Tuesday afternoon, June 24, jointly with the Section on Obstetrics and Gynecology, when two papers were presented, together with a symposium on "Radiation Hazards" with three papers. On Wednesday morning, June 25, the meeting was held in Mark Hopkins Hotel, eight papers being presented. On Thursday morning, June 26, there was a joint meeting with the Section on Diseases of the Chest in California Masonic Memorial Temple with two symposiums.

At the business meeting on Wednesday, June 25, the following officers were elected: Chairman, Dr. Ted F. Leigh, Atlanta, Ga.; Vice-Chairman, Dr. Sydney F. Thomas, Palo Alto, Calif.; Secretary, Dr. Traian Leucutia, Detroit; Delegate, Dr. Eugene P. Pendergrass, Philadelphia; Alternate Delegate, Dr. Earl R. Miller, San Francisco; Representative to Scientific Exhibit, Dr. Richard H. Chamberlain, Philadelphia; and Representative to the American Board of Radiology, Dr. Harold O. Peterson, Minneapolis.

The Section sponsored seven exhibits in the Scientific Exhibit, of which one received a certificate of merit and one an honorable mention.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

The Section on Surgery, General and Abdominal, met in Veterans War Memorial Auditorium, Wednesday, Thursday, and Friday mornings, June 25, 26, and 27, the first session being held jointly with the Section on Anesthesiology. Twelve papers were presented as listed in the program, in addition to a symposium and panel discussion on "Spinal Anesthesia" with six papers.

At the business meeting on Thursday, June 26, the minutes of the 1957 meeting were approved. The Chairman, Dr. Frank Gerbode, commented upon the excellent combined panel with the Section on Anesthesiology on "Spinal Anesthesia." The Secretary, who is also chairman of the American Board of Surgery, read a report concerning the activities of the Board.

The following officers were elected: Chairman, Dr. John H. Mulholland, New York; Vice-Chairman, Dr. Champ Lyons, Birmingham, Ala.; Secretary, Dr. Gustaf E. Lindskog, New Haven, Conn.; Delegate, Dr. Grover C. Penberthy, Detroit; Alternate Delegate, Dr. R. Russell Best, Omaha, Neb.; and Representative to Scientific Exhibit, Dr. Julian Johnson, Philadelphia.

Representatives to the following Boards were also elected: the American Board of Surgery, Dr. J. Garrett Allen, Chicago; the American Board of Neurosurgery, Dr. Frank Mayfield, Cincinnati; and the American Board of Plastic Surgery, Dr. Reed Dingman, Ann Arbor, Mich.

The Chairman outlined tentative plans for the Centennial meeting of the Section in 1959, which will include a centennial honorary lectureship and one afternoon devoted to the history of surgery on the North American Continent.

The Section sponsored 18 exhibits in the Scientific Exhibit. There was one certificate of merit awarded and two honorable mentions. In addition, one exhibit contained material for which a certificate of merit for medical illustration was awarded.

SECTION ON UROLOGY

The Section on Urology met Tuesday and Wednesday afternoons, June 24 and 25, in Masonic Temple, and jointly with the Section on Pathology and Physiology in Civic Auditorium on Thursday afternoon, June 26. Sixteen papers were presented in addition to a panel discussion on "Carcinoma of Lower Urinary Tract."

At the business meeting on Wednesday, June 25, the following officers were elected: Chairman, Dr. Milton M. Coplan, Miami, Fla.; Vice-Chairman, Dr. Thomas A. Morrissey, New York; Secretary, Dr. Edward H. Ray, Lexington, Ky.; Assistant Secretary, Dr. Myron Nourse, Indianapolis; Delegate, Dr. Jay J. Crane, Los Angeles; Alternate Delegate, Dr. Earl Ewert, Boston; Representative to Scientific Exhibit, Dr. E. F. Poutasse, Cleveland; and Assistant Representative to Scientific Exhibit, Dr. Dean Parker, Seattle.

The Section sponsored 22 exhibits in the Scientific Exhibit, one of which failed to arrive from Mexico. There were three awards, consisting of the Billings Silver Medal, a certificate of merit, and an honorable mention. In addition, the Section presented the John H. Morrissey Memorial Award to Drs. George R. Prout, Miami, Fla., Michael Sierp and Willet F. Whitmore Jr., New York, for their exhibit on "Radioactive Zinc in the Male Canine Genitalia."

AWARDS FOR SCIENTIFIC EXHIBITS

The Committee on Awards has made the following report of the awards given at the 1958 Annual Meeting of the American Medical Association.

Hektoen Medal

Hektoen medals, presented to exhibits of original investigation judged on the basis of originality and excellence of presentation, were awarded as follows:

Gold Medal.—Alvin L. Watne, Stuart S. Roberts, Ruth G. McGrath, Elizabeth A. McGrew, and Warren H. Cole, University of Illinois College of Medicine, Chicago, for an exhibit on Cancer Cells in the Circulating Blood.

Silver Medal.—Meyer Texon, New York University Post-Graduate Medical School and Office of the Chief Medical Examiner, City of New York, New York, for an exhibit on the Hemodynamic Concept of Atherosclerosis.

Bronze Medal.—Irving S. Cooper, New York University-Bellevue Medical Center and St. Barnabas Hospital, New York, for an exhibit on Chemopallidectomy for Dystonia and Other Juvenile Involuntary Movement Disorders.

Billings Medal

Gold, silver, and bronze Billings medals were presented to exhibits judged on the basis of excellence of correlation of facts and presentation rather than upon experimental studies:

Gold Medal.—C. H. Hodgson, J. A. Callahan, A. J. Bruwer, and A. H. Bulbulian, Mayo Clinic and Mayo Foundation, Rochester, Minn., for an exhibit on Misleading Thoracic Roentgenograms.

Silver Medal.—Roderick D. Turner, University of California Medical Center, Los Angeles, for an exhibit on Surgical Technique and Uses of Isolated Intestinal Segment in Urological Surgery.

Bronze Medal.—Julio C. Davila, Robert G. Trout, Joseph E. Sunner, and Robert P. Glover, The Thoracic and Cardiovascular Research Laboratory at Presbyterian Hospital, Philadelphia, for an exhibit on Cardiac Valvular Dynamics: Anatomic, Physiologic and Pathologic Studies.

Section Awards

Certificates of Merit and Honorable Mention were awarded to the following exhibits in each section.

Section on Anesthesiology

Certificate of Merit to Dante Bizzarri and Joseph Giuffrida, Columbus and Elmhurst General Hospitals, and New York Medical College, New York, for the exhibit on Continuous Monitoring of Circulation During Surgery.

Honorable Mention to John Adriani and Bobby Smith, Charity Hospital and Louisiana State University School of Medicine, New Orleans, for the exhibit on Respiratory Stimulants.

Section on Dermatology

Certificate of Merit to Eugene P. Schoch Jr., Austin, Texas, and Arthur G. Schoch and Lee J. Alexander, Southwestern Medical School Dallas, Texas, for the exhibit on Pruritus: A Review of Etiology and Treatment.

Honorable Mention to Arthur S. Spangler, Harvard Medical School, Massachusetts General and Peter Bent Brigham Hospitals, Boston, for the exhibit on Fibrin Foam Treatment of Depressed Scars.

Section on Diseases of the Chest

Certificate of Merit to William L. Watson, Ulrich K. Henschke, William G. Cahan, Eugene E. Cliffton, John T. Goodner, Raymond J. Luomanen, and John L. Pool, Memorial Center for Cancer and Allied Diseases, New York, for the exhibit on Lung Cancer: Management by Interstitial Irradiation.

Honorable Mention to Gustav J. Beck, Columbia University College of Physicians and Surgeons and Presbyterian Hospital, New York, for the exhibit on a Physiological Approach to the Medical Management of Bronchopulmonary Disease.

Honorable Mention to George D. Geckeler, William Likoff, R. C. Truex, Henry T. Nichols, Houck E. Bolton, Dryden P. Morse, Joseph F. Uricchio, Harry Goldberg, Clemente Oca, Jacob Zimmerman, and Charles P. Bailey, Bailey Thoracic Clinic and Hahnemann Medical College and Hospital, Philadelphia, for the exhibit on the Significance of the Fibrous Skeleton of the Heart in Mitral Valve Surgery.

Section on Experimental Medicine and Therapeutics

Certificate of Merit to Myron Prinzmetal, Rexford Kennamer, Naci Bor, and Takashi Wada, Institute for Medical Research, Cedars of Lebanon Hospital and University of California School of Medicine, Los Angeles, for the exhibit on Coronary Artery Disease: New Clinical and Experimental Observations.

Honorable Mention to Marvin John Seven and L. Audrey Johnson, Hahnemann Medical College and Hospital of Philadelphia, Philadelphia, for the exhibit on What Is Chelation? Medical Applications of Metal-binding Agents.

Honorable Mention to Hubert C. Peltier, Harold L. Upjohn, Robert O. Stafford, and Robert H. Levin, The Upjohn Company, Kalamazoo, Mich., for the exhibit on Relation of Steroid Structure to Function: Improvement on Natural Steroids Through Alteration of Chemical Structure.

Section on Gastroenterology and Proctology

Certificate of Merit to Francis M. Spencer, San Angelo Medical and Surgical Clinic, San Angelo, Texas, and Lee S. Monroe, Scripps Clinic and Research Foundation, LaJolla, Calif., for the exhibit on Color Photomicrographs in Teaching Recognition of the Intestinal Parasites.

Honorable Mention to J. L. Bollman, F. F. Whitcomb Jr., H. N. Hoffman II, and H. R. Butt, Mayo Clinic and Mayo Foundation, Rochester, Minn., for the exhibit on Bile Pigments of Icteric Serum.

Honorable Mention to George Kulick and Louis M. Rousselot, St. Vincent's Hospital, New York, for the exhibit on Automatic Tamponade Controls for Bleeding Esophagogastric Varices.

Section on General Practice

Certificate of Merit to E. D. Bayrd and A. B. Hagedorn, Mayo Clinic and Mayo Foundation, Rochester, Minn., for the exhibit on Blood Smears: Their Value in General Diagnosis.

Honorable Mention to W. D. Snively Jr., Michael J. Sweeney, and M. L. Wessner, St. Mary's Hospital, Evansville, Ind., for the exhibit on Clinical Pictures of Fluid Imbalances.

Honorable Mention to Paul Q. Peterson, S. D. Pomrinse, and Bernard D. Daitz, Chronic Disease Program, Public Health Service, and Josephine J. Buchanan, District of Columbia General Hospital, Washington, D. C., for the exhibit on Strike Back at Strokes: Early Mobilization of the Stroke Patient.

Members of the Committee on Awards are Drs. Frank B. Queen, Portland, Ore., Chairman; William B. Condon, Denver; Louis B. Newman, Chicago; Henry H. Turner, Oklahoma City; and J. Walter Wilson, Los Angeles.

Section on Internal Medicine

Certificate of Merit to Douglass H. Howry, Joseph H. Holmes, Gerald J. Posakony, and Richard Cushman, University of Colorado School of Medicine, Denver, for the exhibit on Visualization of Living Soft Tissue Structures by Ultrasonic Methods.

Honorable Mention to Penn G. Skillern, Marvin Clamen, E. Perry McCullagh, and Otto Glasser, Cleveland Clinic, Cleveland, for the exhibit on Radioiodine for Diagnosis and Therapy of Hyperthyroidism due to Adenomatous Goiter.

Honorable Mention to Ralph V. Ford, Charles L. Spurr, John H. Moyer, Carroll A: Handley, and J. B. Rochelle, Baylor University College of Medicine and Veterans Administration Hospital, Houston, Texas, for the exhibit on Diuretic Therapy.

Section on Laryngology, Otology, and Rhinology

Certificate of Merit to Joel J. Pressman and Mildred Burtz Simon, University of California at Los Angeles School of Medicine, Los Angeles, for the exhibit on Repair of Cervical Trachea and Esophagus by Aortic Homografts.

Honorable Mention to J. Brown Farrior, Southern Foundation, Tampa, Fla., for the exhibit on Mobilization or Fenestration: Pathological Indications in 3-D.

Honorable Mention to Victor Goodhill, Arthur L. Holcomb, Seymour J. Brockman, and Irwin Harris, Deafness Research Laboratory, Children's Hospital, Cedars of Lebanon Hospital, and University of Southern California School of Medicine, Los Angeles, for the exhibit on Monitored Stapes Mobilization: Peribasal Approach.

Section on Military Medicine

Certificate of Merit to Eli L. Beeding Jr., Holloman Air Force Base, New Mexico, for the exhibit on Human Tolerance to Mechanical Forces.

Honorable Mention to Maurice R. Hilleman, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D. C., for the exhibit on Asian Influenza: Identification, Diagnosis, and Vaccination.

Honorable Mention to Jerome J. De Cosse, Benjamin H. Gaston, Wilfred T. Tumbusch, and Edward H. Vogel Jr., U. S. Army Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas, for the exhibit on the Initial Care of the Severely Burned Patient.

Section on Nervous and Mental Diseases

Certificate of Merit to R. V. Randall, E. C. Clark, H. W. Dodge Jr., R. C. Bahn, and Arthur H. Bulbulian, Mayo Clinic and Mayo Foundation, Rochester, Minn., for the exhibit on Diabetes Insipidus: Current Concepts in the Production of Antidiuretic Hormone with Clinical and Experimental Observations.

Honorable Mention to John A. Wagner, and Rafael Longo-Cordero, University of Maryland School of Medicine, Baltimore, for the exhibit on Let's Do Away with "CVA."

Honorable Mention to A. E. Bennett, G. L. Mowery, and Joel Fort, Herrick Memorial Hospital, Berkeley, Calif., for the exhibit on Alcoholic Brain Disease.

Section on Obstetrics and Gynecology

Certificate of Merit to James S. Krieger and Lawrence J. McCormack, Cleveland Clinic, Cleveland, for the exhibit on Cervical Carcinoma in-Situ: the Role of Radical Conization.

Honorable Mention to Edward T. Tyler and Henry J. Olson, University of California at Los Angeles School of Medicine, Los Angeles, for the exhibit on Fertility-Promoting and Anti-Fertility Effects of New Steroids.

Section on Ophthalmology

Certificate of Merit to L. K. Garron, M. J. Hogan, W. K. McEwen, and M. L. Feeney, University of California Medical Center, San Francisco, for the exhibit on Electron Microscopy of Ocular Tissue.

Honorable Mention to Dan M. Gordon, New York Hospital, Cornell Medical Center and The L. Margolyes League, New York, for the exhibit on Common Ocular Problems.

Honorable Mention to George K. Smelser and George D. Pappas, Columbia University College of Physicians and Surgeons, New York, for the exhibit on Electron Microscopy of the Epithelium of the Ciliary Body.

Section on Orthopedic Surgery

Certificate of Merit to Joseph L. Fleming, Christopher Glenney, Jerome Stroot, and Victor Zackay, Henry Ford Hospital, Detroit, for the exhibit on Experimental Knee Arthroplasty: a study of the Effect of Various Interposing Membranes.

Honorable Mention to Donald S. Miller and Rowlin L. Lichter, Chicago Medical School and Cook County Hospital, Chicago, for the exhibit on Circulatory System Changes Associated with Orthopedic Conditions (by Decades).

Section on Pathology and Physiology

Certificate of Merit to Henry C. Sweany, David F. Gorelick, Fred C. Coller, and James L. Jones, Missouri State Sanatorium, Mount Vernon, Miss., for the exhibit on Pathology and Pathogenesis: Subacute and Chronic Pulmonary Histoplasmosis.

Honorable Mention to Edward H. Johnston, Armed Forces Institute of Pathology, Washington, D. C., Paul F. Guerin and Russell S. Fisher, Office of Chief Medical Examiner, Baltimore, for the exhibit on the Medicolegal Autopsy: Obscure and Unusual Causes of Unexpected Death.

Section on Pediatrics

Certificate of Merit to Willard R. Centerwall and Siegried A. Centerwall, College of Medical Evangelists, Los Angeles, for the exhibit on Early Diagnosis and Management of Phenylketonuria.

Honorable Mention to Simon Kove, Stanley Goldstein, Ralph E. Perry, and Felix Wróblewski, New York University College of Medicine and Sloan-Kettering Institute, Memorial Center, New York, for the exhibit on Diagnosis of Neonatal Jaundice by Serum Transaminase.

Section on Physical Medicine

Certificate of Merit to F. J. Kottke and W. G. Kubicek, University of Minnesota Medical School, Minneapolis, for the exhibit on Cardiac and Metabolic Demands During Rehabilitation Procedures: Methods and Results.

Honorable Mention to W. D. Paul and David M. Paul, University of Iowa and Veterans Administration Hospital, Iowa City, for the exhibit on Ankle Sprains: Prevention and Treatment.

Section on Preventive Medicine

Certificate of Merit to Morris Goldman, Max D. Moody, Robert A. Goldwasser, and Theodore R. Carski, Communicable Disease Center, Public Health Service, U. S. Department of Health, Education, and Welfare, Atlanta, Ga., for the exhibit on Rapid Diagnosis with Fluorescent Antibody.

Honorable Mention to Peter Safar, Baltimore, James O. Elam and David G. Greene, Buffalo, U. S. Army Medical Service, for the exhibit on Respiratory Resuscitation.

Section on Radiology

Certificate of Merit to I. E. Kirsh and J. F. Kinney, Veterans Administration Hospital, Hines, Ill., for the exhibit on Roentgen Diagnosis of Mitral Stenosis.

Honorable Mention to William Molnar, Sidney W. Nelson, Karl P. Klassen, and Joseph M. Ryan, Ohio State University Hospital, Columbus, Ohio, for the exhibit on Aortic Valvulography and Ascending Aortography.

Section on Surgery, General and Abdominal

Certificate of Merit to C. W. Lillehei, H. E. Warden, R. A. DeWall, V. L. Gott, P. C. Hodges, P. Adams, R. C. Anderson, R. L. Varco, and O. H. Wangensteen, University of Minnesota Medical School, Minneapolis, for the exhibit on Management of the Candidate for Open Heart Surgery.

Honorable Mention to C. W. Mayo, J. M. Waugh. E. S. Judd Jr., B. M. Black, G. A. Hallenbeck, and O. H. Beahrs, Mayo Clinic and Mayo Foundation, Rochester, Minn., for the exhibit on Surgical Management of Carcinoma of the Rectum and Rectosigmoidal Region.

Honorable Mention to Howard H. Steel, Kenneth M. Schreck, H. Taylor Caswell, Norman Learner, R. Robert Tyson, and Elsie R. Carrington, Temple University Medical Center, Philadelphia, for the exhibit on Staphylococcal Hospital Infections.

Section on Urology

Certificate of Merit to Hans Elias, Chicago Medical School, Chicago, for the exhibit on New Concepts Concerning the Structure of the Nephron.

Honorable Mention to Vernon H. Youngblood, Edwin M. Tomlin, and Jerome O. Williams, Concord, N. C., for the exhibit on Exfoliative Cytology of the Senile Female Urethra.

Section on Miscellaneous Topics

Certificate of Merit to Thomas S. Masterson, Verlin Y. Yamamoto, and Joseph K. Brown, Biological Photographic Association, New York, for the exhibit on Medical Photography: an Aid to Medical Education.

Honorable Mention to Hooker Goodwin, Angela Bartenbach, and Gladys McHugh, Association of Medical Illustrators, Chicago, for the exhibit on Medical Illustration of Today.

Exhibit Symposium on Arthritis and Rheumatism

Certificate of Merit to Charley J. Smyth, Robert L. Johnson, and Glenn M. Clark, University of Colorado School of Medicine, Denver, for the exhibit on Evaluation of Therapy in Rheumatoid Arthritis.

Honorable Mention to Bernard M. Norcross and Salvatore R. La Tona, University of Buffalo School of Medicine and Buffalo General Hospital, Buffalo, for the exhibit on Diseases of the Connective Tissues.

Medical Photography

A special certificate for the effective use of photography in the presentation of medical information to Fred W. Kent, James A. Kent, and Jack Davis, Iowa City. This award is newly introduced in recognition of the importance of medical photography in visual education, and is presented for the photography which appears in the exhibit on Ulcerative Colitis by J. A. Clifton, R. C. Hickey, G. H. M. Thornton, and R. T. Tidrick, State University of Iowa, Iowa City.

Medical Illustration

A special certificate in the field of medical illustration to Barbara Allison and Verlin Y. Yamamoto, Des Moines, Iowa, for the well-illustrated exhibit on Upper Dorsal Sympathectomy by Louis T. Palumbo, Veterans Administration Center, Des Moines.

Honorable Mention to Alfred Teoli and William Stone, San Francisco, for medical illustration in the exhibit on The Gastric Analysis by J. Alfred Rider, Hugo C. Moeller, Joyce Swader, Lourdes O. Agcaoili, Richard G. Devereaux, Jennie Lee, Ernesto Puletti, and John O. Gibbs, University of California Medical Center, San Francisco.

Honorable Mention to Gerald P. Hodge, Ann Arbor, Mich., for medical ilustration in the exhibit on Correction of Intracardiac Defects by Herbert Sloan, Joe D. Morris, and Aaron Stern, University of Michigan Medical School, Ann Arbor.

Special Exhibits

The Committee on Awards commended the continuous high quality of the special exhibits on Fractures, Pulmonary Function, and particularly the development of physical examinations for physicians under the Section on General Practice.

Science Fair and Student A. M. A. Exhibits

The Committee on Awards commended the high quality of the exhibits presented by the two teen-age Science Fair exhibitors, and the two Student A. M. A. exhibitors.

History of Medicine

The Committee on Awards commended Parke Davis & Company, Detroit, Mich., for its outstanding paintings on Epics in Medical History which were presented in the main corridor of The Scientific Exhibit, and also the outstanding exhibits on medical history, namely, A Century of Naval Medicine presented by the United States Navy and E. R. Squibb & Sons, and the History of the Medical Department, U. S. Army in World War II, presented by John Boyd Coates Jr., of the U. S. Army Medical Service, Walter Reed Army Medical Center, Washington, D. C.

Comments

To the many persons involved in the preparation and demonstration of exhibits and to the Section Representatives for their assistance, the Committee on Awards wishes to give its thanks.

The Committee on Awards commends Dr. Thomas G. Hull and his staff for their efforts throughout the year in planning and arranging this outstanding Scientific Exhibit.

ABSTRACTS ON ABSENCE FROM WORK

A future issue of THE JOURNAL will carry an article entitled, "Abstracts on Absence from Work and Its Relation to Private Practice." Prepared as part of the continuing activity of the Committee on Medical Care for Industrial Workers in this field, this article reflects some of the current opinions and attitudes toward the problem of work absence.

The abstracts have been combined in such a manner as to portray the wide range of interest in the area of absence from work, the problems involved in evaluating the causes and extent of absence due to nonoccupational illness and injury, and factors which concern the private practitioner as they relate to the certification of illness. The picture as evolved by the article calls for a teamwork approach by management and medical personnel, as well as the individual affected, in order "to assist in a clearer understanding of the causes of work absence."

The introduction to the article stresses the important role of the private physician in finding and certifying health conditions justifying absence and in returning his patient to work at the earliest opportunity. It points out that, "The failure of the private physician to participate in efforts by industry to evaluate absence from work may only result in unsatisfactory programs for all concerned."

COUNCIL ON MEDICAL SERVICE

COMMITTEE ON MEDICAL CARE FOR INDUSTRIAL WORKERS

A Preliminary Guide for Measuring Work Absence due to Illness and Injury.—The subject of work absence has always been an area of interest and activity of the Committee on Medical Care for Industrial Workers. The Committee has conducted several studies, held conferences, and published various types of materials on this subject, which have created a considerable amount of interest.

The Committee's major contribution was made in 1956 through sponsorship of a conference on absence from work due to nonoccupational illness and injury. Over 500 persons from the medical and allied professions active in this field attended and attempted to summarize existing knowledge of problems related to absence from work. One of the recommendations of the Conference was that the Committee on Medical Care for Industrial Workers "establish and recommend practices and procedures on the fundamentals of basic morbidity record-keeping systems."

With the advice of experts on both medical and management levels concerned with work absence, the Committee has just published a Preliminary Guide for Measuring Work Absence due to Illness and Injury. This Guide contains various definitions and formulas which the Committee hopes will serve as a foundation for the uniform collection of sickness absence statistics. The Guide is a preliminary one in that the Committee hopes to be able to revise it according to the suggestions and experience of persons who will be using it, and thereby modify it in future editions so that it will ultimately serve as a basic reference work in this field. Future revisions of this Guide will also contain a recommended nomenclature which the Committee has not attempted to formulate with this printing of the Guide.

The 11-page booklet, available on request without charge, contains a "comment and suggestion form" which the Committee hopes will be used by medical and other personnel to provide it with suggestions for future consideration in revising the Guide.

1958 Survey of Union Health Centers.—A third Survey of Union Health Centers has recently been completed by the Committee on Medical Care for Industrial Workers. The survey, to be issued in publication form in the near future, will contain descriptions of 28 health centers. They represent more than half of the 50 union health centers in operation as of the end of 1957; their membership represents almost 80% of the 950,000 persons enrolled in all union health centers.

The Survey treats each union health center as a specific case study, and for each plan includes information and data on (1) history; (2) membership; (3) objectives of programs; (4) facilities; (5) financing; (6) budget and operating costs; (7) administration; (8) business and professional personnel; (9) benefits; and (10) preventive aspects of these services.

Some of the highlights of the survey findings are as follows:

—Ten of the 28 plans surveyed, with an enrollment of approximately 530,000, cover one or more dependents; 3 of these also cover retired members.

—The programs of 22 of the 28 union health centers were participated in and supported by 482 local unions; over 4,800 firms were involved in the collectively bargained agreements supporting the programs of 18 union health centers.

—Seventeen of the 28 centers provide diagnostic and ambulatory medical care, 10 provide diagnostic services only, and one offers comprehensive medical care.

—Over 1,100 physicians were employed in 27 of the 28 programs, most of them on an hourly or per-session basis; in a few instances physicians in private group practice rendered specific services to members and, in some instances, to dependents of union members.

—Hourly rates for general practitioners ranged from $5.75 to $10 per hour; specialists received from $7 to $12 per hour.

Joint Committee of the Council on Medical Service and the Council on Industrial Health.

–Yearly utilization ranged from a low of 5.5% in one plan to a high of 89.2% in another plan; in 11 plans it ranged from 31 to 50%.

–Collective bargaining represents the prime source of monies for which support of 24 of the 28 centers is received.

COMMITTEE ON FEDERAL MEDICAL SERVICES

VA Insurance Cases–New Action.–The Veterans' Administration is authorized, by law, to provide care for veterans with non-service-connected disabilities, within the limits of available facilities–if the veteran is unable to pay for care. The only measure of the veteran's ability to pay mentioned in the law is his statement, under oath, that he cannot pay for the necessary hospitalization and medical care.

With this as authority, the VA has, for many years, provided hospital and medical care for veterans with various types of health insurance and for veterans with disabilities covered by workmen's compensation coverage. Not only has it provided such care but also it has billed the insurers for such care. In fiscal year 1955, for example, the VA reported receipts of almost 4 million dollars from nonfederal sources; the "major portion" of these receipts, according to the VA, consisted of "proceeds from hospitalization contracts."

At its Seattle session in November, 1956, the House of Delegates of the American Medical Association adopted resolutions condemning this practice as "unlawful" (since insured patients should not be considered as "unable to pay for care") and "a definite violation of the ethical principles governing the practice of medicine" (since billing insurance companies for this care involves the federal government in medical practice on a fee-for-service basis). The resolutions were referred to the Council on Medical Service for action.

On June 26, 1957, the VA took a first step in the direction of curtailing this type of care. It instructed hospital administrators, when a veteran's non-service-connected disability is covered by workmen's compensation or similar industrial accident insurance, to so notify the veteran and urge him to request transfer to a non VA hospital. If he refuses, his file is to be sent to the VA central office, for possible referral to the Department of Justice. No action was taken at that time in regard to other insured veteran patients.

On July 30, 1958, Rep. Olin E. Teague (D., Texas), Chairman of the House Committee on Veterans' Affairs, reported a bill, H. R. 10028, to the House. This bill deals entirely with the medical care aspects of the Veterans' Administration's operations, and includes several provisions concerning workmen's compensation and insured cases.

First, it would require the veteran to fill out a complete statement of his assets and liabilities, as a guide to determining whether or not he can pay for care. In short-term cases (less than 30 days), the VA hospital manager is to inform the applicant of the cost of necessary care in local nonfederal hospitals, and urge reconsideration of the statement of inability to pay. The statement of assets would include a listing of any health insurance held by the veteran (though not of any income of his wife or other responsible relatives).

This statement of assets is already being used in VA hospitals, but the proposed bill would make it a matter of law, rather than of administrative regulation.

Secondly, the bill would give veterans with disabilities covered by workmen's compensation or health insurance the lowest priority for admission of all non-service-connected patients. These applicants could be refused admission so long as any other veteran is on a waiting list for admission to the same facility. This system of priorities had, in effect, already been established in the VA for the workmen's compensation cases, but the bill would give statutory recognition to the practice and would include insured cases.

It should be noted that this priority system would by no means eliminate the VA practice of admitting these patients, since insured applicants would still be admitted if there were no noninsured applicants on the waiting list.

It should also be noted that the House Committee makes no mention, in its report accompanying the bill, of the ethical questions involved; it does not even discuss the question of whether these applicants can truly be considered "unable to pay" or whether the VA can properly bill insurers for medical care. The reasons actually given for the proposed amendment are, first, that veteran patients with insurance who do not use it are depriving veterans who do not have such coverage and, second, that the VA cannot collect on most such insurance, anyway.

In this connection, the report gives some very interesting figures on VA patients. In fiscal year 1953, about 52,200 of the patients discharged by the VA had hospital insurance, and the VA collected a little over 3 million dollars for care provided; in 1957, over 73,000 patients were insured, but the VA collected only $2,700,000. The amount collected per case has gone down about one-third–but the number of patients with insurance has increased by one-half!

The proposed amendments, insofar as they concern admission of insured patients, do not represent full implementation of the stated policy of the medical profession, but they do indicate that this policy is receiving serious consideration and may represent a step toward a realistic appraisal of the veteran's ability to pay for care.

COUNCIL ON NATIONAL DEFENSE

There has been a steady decline in applicants applying for a reserve commission and subsequent active military duty. The Selective Service System might be called upon to obtain physicians on a special draft call after July 1, 1959. The Council is making the following report as a subject of interest to all young physicians who have a draft liability under the provisions of the Universal Military Training and Service Act. FRANK W. BARTON, *Secretary.*

PHYSICIANS SUBJECT TO DRAFT CALL IN 1959

The last special call for induction of physicians by the Selective Service System was made in October, 1955, for 297 physicians for active military service commencing in February, 1956. Since that call, the military requirements for physicians have been filled through voluntary applicants of young physicians for reserve commissions under the Berry Plan. Under that plan, deferments for internship and residency training are given to physicians making application for a reserve commission with subsequent active duty callup.

Under the current law, only physicians up to age 35 who are liable under the general draft law have a military obligation.

On Sept. 22, 1958, the Selective Service System advised local draft boards that too few physicians are volunteering for active duty to meet service requirements and that, if the present trend continues, a special call for physicians might be necessary. Local boards are expected, in anticipation of a possible special call for physicians (but not dentists), to proceed with the physical examination of all physicians in class I-A or class I-A-0 if they have not been examined.

The Department of Defense estimates it will need 1,000 intern volunteers for the Berry Plan to meet its medical requirements next summer. As of Oct. 1, 1958, there was still a deficit of some 600 intern applicants out of 5,400 interns who are liable for military service. The deadline of Sept. 15, 1958, has been extended for interns desiring to apply for a reserve commission and active duty following internship. If sufficient volunteers are not forthcoming in the next few months, the Department of Defense will be forced to place a call with Selective Service for physicians for active duty after July, 1959.

An upturn in the rate of residents volunteering under the Berry Plan in the past few weeks has satisfied the anticipated military requirements in all specialties except otolaryngology and psychiatry. About 900 residents have received reserve commissions. The Council is informed that some physicians have applied for immediate active duty and have been turned down by the Army because their deficit for 1959 is quite small.

All interns who applied prior to Sept. 15 may go on active duty at the completion of their internship early next summer. Some of those who subsequently volunteer also will have that privilege if they so wish, but others will have to wait until September or later in the fall of 1959.

MEDICAL CIVIL DEFENSE CONFERENCE

The Council on National Defense, American Medical Association, is sponsoring the ninth annual conference of the County Medical Societies Civil Defense Organization. The conference will be held at the Morrison Hotel, Chicago, on Nov. 8 and 9, 1958.

The Program

These yearly conferences are planned to inform and otherwise assist medical and health personnel for their respective roles in disasters. Conferees have the opportunity (1) to participate in workshop sessions concerning medical preparedness to cope with disasters, (2) to discuss and exchange information dealing with emergency medical services, (3) to be informed on the availability of pamphlets and articles devoted to the medical and health aspects of civil defense, and (4) to hear outstanding speakers report on appropriate civil defense and disaster topics.

A realistic test exercise involving simulated disasters is the best method, short of the real thing, to determine the operational capabilities and adequacy of emergency medical and health plans and programs. The conference this year will feature reports on the experience gained from three such test exercises.

Those desiring additional information about the conference are requested to contact Mr. Frank W. Barton, Secretary, Council on National Defense, American Medical Association, 535 N. Dearborn St., Chicago 10.

SATURDAY—NOV. 8, 1958
COTILLION ROOM, MORRISON HOTEL

8:00- 9:00	*Registration*
9:00- 9:05	Call to Order Edward G. Sharp, M. D.
9:05- 9:15	Welcome Address F. J. L. Blasingame, M. D.
9:15- 9:30	The A. M. A. CD Program Carroll P. Hungate, M. D.
9:30-10:00	The Federal CD Program—OCDM Honorable Leo A. Hoegh
10:00-10:20	National Medical Preparedness—OCDM (Speaker to be selected)
10:20-10:40	Biological and Chemical Warfare Paul A. Lindquist, M. D.
10:40-11:00	Intermission
11:00-11:30	California CPX—Medical and Welfare Services Frank F. Schade, M. D.
11:30-12:00	Operation Prep Pitt Francis C. Jackson, M. D.
12:00-12:30	General Public Health Problems in Civil Defense Lieut. Col. Ingalls H. Simmons, M. C., U. S. Army.
12:30- 2:00	Luncheon—Embassy Room
2:00- 5:15	Workshop Session Conferees to be divided into four groups to consider specific problems and recommended courses of action in "Planning for Mass Casualty Care." Orientation and Assignments—Cotillion Room Edward G. Sharp, M. D. I Organization and Training Group Leader—James H. Lade, M. D. Advisor—William H. Reiff, M. D. II Reception, Evacuation, and Emergency Care Group Leader—Harold C. Lueth, M. D. Advisor—(to be selected) III Hospital Disaster Planning Group Leader—Max L. Lichter, M. D. Advisor—John N. Hatfield II IV Supplies, Transportation, and Communication Group Leader—Lester M. Petrie, M. D. Advisor—Charles P. Anderson, M. D.
6:00- 7:00	Social Hour

SUNDAY—NOV. 9, 1958

9:00- 9:30	A. M. A. Special Study Project Report Earle Standlee, M. D.
9:30-10:30	Workshop Session Reports Harold C. Lueth, M. D., Presiding.
10:30-11:00	Operation Test Star Burton E. Adams, M. D.
11:00-11:15	Intermission
11:15-11:45	Operation AFTA John K. Hampton Jr., Ph.D.
11:45-12:00	The Profession's CD Responsibilities Gunnar Gundersen, M. D.
12:00-12:30	*OCDM Shelter Habitability Program* Paul S. Parrino, M. D.
12:30- 2:00	Luncheon—Embassy Room
2:00- 2:30	Selected Movies
2:30- 2:45	Resuscitation Techniques Robert A. Hingson, M. D.
2:45- 3:00	The CD Role of Dentists Russell W. Bunting, D.D.S.
3:00- 3:15	The CD Role of Nurses Catherine M. Sullivan, R. N.
3:15- 3:45	Business Session—Adjournment Edward G. Sharp, M. D., Presiding.

PARTICIPANTS

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Catherine M. Sullivan, R.N., Nurse Consultant, Office of Civil and Defense Mobilization, Battle Creek, Mich.

MEDICAL NEWS

ARKANSAS

Construct Children's Colony at Conway.—Construction has started on the first phase of a building program for the Arkansas Children's Colony at Conway, according to David B. Ray Jr., superintendent. The state is said to be one of two that have no state facilities for the mentally retarded. Located about 33 miles from Little Rock, the site contains 406 acres. The overall building program is that for a new community planned for children with the aim to create a homelike atmosphere. There will be a central group of buildings and nearby, eight children's cottages, each with its own serving kitchen, dining room, day room and play yard. The initial construction will accommodate 256 children, with 32 living in each cottage. Facilities for 1500 will eventually be completed. Future expansion of the central area will include chapel, auditorium, gymnasium, children's store and other facilities. Only educable and trainable children aged 6 to 18 will be enrolled initially. The Colony's budget provides for four trainee positions for advanced students in psychology, education, social work and other professional areas.

CALIFORNIA

Associate Deans at Stanford.—Dr. Lowell A. Rantz, professor of medicine became associate dean of Stanford University School of Medicine Sept. 1, joining two other associate deans, Lyle E. Cook and Dr. Lyman M. Stowe, and replacing Dr. Jay Ward Smith, who resigned to resume private practice. Dr. Rantz will assist Dean Alway in the administration of medical affairs and professional relations both inside and outside the Medical School. He will continue his teaching, research, and clinical activities in the department of medicine.

Society News.—The officers of the Los Angeles Obstetrical and Gynecological Society, Inc. for 1958 are: Dr. Alphonsus M. McCarthy, president; Dr. Dan Golenternek, vice-president; and Dr. John L. Gaspar, 16100 Ventura Boulevard, Encino, Calif. (STate 4-8251), secretary-treasurer.——The 1958-59 officers of the Los Angeles Radiological Society are: president, Dr. Lewis J. Peha, Los Angeles; vice-president, Dr. Putnam C. Kennedy, Glendale; secretary, Dr. Robert B. Engle, Pasadena; treasurer, Dr. Robert E. Rickenberg, Los Angeles; and member of the executive committee (3 years), Dr. Richard A. Kredel, Pasadena. The society meets the second Wednesday of September, November, March, April, and June, at the Los Angeles County Medical Association Building.

GEORGIA

Grant to Poliomyelitis Center.—A grant of $65,545 has been made by The National Foundation (formerly the National Foundation for Infantile Paralysis) in continuing support of the work of the Southeastern Poliomyelitis Respiratory and Rehabilitation Center at the Medical College of Georgia during the year from July 1, 1958, through June 30, 1959. The center, one of 17 in the United States, is continuing its program of study and treatment of paralyzed children and adults from throughout the South. An active teaching program is made available to physicians, medical students. The staff of the center is surveying the problems of polio respirator patients in their homes throughout the southeastern states, and offering assistance to their families and physicians.

ILLINOIS

Chicago

George H. Coleman Medal Established.—The Institute of Medicine of Chicago has established the George Howell Coleman medal as a tribute to Dr. Coleman, who has been a devoted secretary of the Institute for nearly 25 years. The medal is to be awarded to "a physician or kindred scientist who has rendered outstanding service to the community above and beyond the practice of his profession." Dr. Coleman will be the recipient of the first Coleman medal, which will be presented at a dinner at the Drake Hotel, Oct. 27.

Dr. Coleman graduated from Rush Medical College and was the last assistant trained by the late Dr. Frank Billings. He has been an associate of Dr. Joseph A. Capps, is senior consulting physician at St. Lukes Hospital, a member of the Board of Directors of the Blue Shield Plan, and was a member of the organizing committee of the Central Service for the Chronically Ill of the Chicago Institute of Medicine.

INDIANA

Dr. Bennett Joins Research Program.—Dr. Ivan F. Bennett, chief of psychiatric research for the V. A. in Washington, D. C., for the last two years, has

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

joined the Lilly Laboratory for Clinical Research and will be in charge of Lilly's clinical research program in the field of mental health. His office is located in the Institute of Psychiatric Research at the Indiana University School of Medicine's department of psychiatry.

KENTUCKY

General Practice Meeting at Fort Knox.—The annual meeting of the Kentucky Academy of General Practice at Ireland Army Hospital, Fort Knox, has been scheduled for Oct. 30. Dr. David G. Miller, Morgantown, will present "Insect Bites." The program also includes the following:

X-Ray in General Practice, Lt. Col. Russell E. Graf, M. C., Chief of X-Ray Service.
Renal Disease in Children, Capt. George L. Blum, M. C., Pediatrician.
Current Therapy of Venereal Diseases, Lt. Col. Urban L. Throm II, M. C., Chief, Psychiatry and Neurology Service.
Character and Behavior Disorders, Lt. Col. Ralph E. Campbell, M. C., Chief, Psychiatry and Neurology Service.
Therapy of Angina, Lt. Col. Jules J. McNerney, Chief, Medical Service.
Recent Advances in Laboratory Procedures, Lt. Col. Edward J. Fadell, Chief, Laboratory Service.

During the afternoon a tour is planned of the Preventive maintenance display at the hospital.

MASSACHUSETTS

Medical History Meeting.—The Benjamin Waterhouse Medical History Society will meet at the Massachusetts Memorial Hospital, Boston, Oct. 20. "Medicine at Plymouth Plantation" will be given by Dr. John J. Byrne, professor of surgery, Boston University School of Medicine, director, Third (B. U.) Surgical Service and Research Laboratory, Boston City Hospital. For reservation for dinner (6 p.m.) call KE 6-8600. The newly elected society officers for 1959 are as follows: president, Dr. Lamar Soutter; vice-presidents, Mr. George Thornton and Mr. Arnold Wong; and secretary-treasurer, Dr. John J. Byrne, all of Boston. Membership in the society is open to physicians and medical students, and applications may be obtained from the secretary at 818 Harrison Avenue, Boston 18, Mass.

MICHIGAN

Testimonial to Veteran Teachers.—Two Hundred faculty members of the University of Michigan Medical School, Ann Arbor, met at a Testimonial Dinner and paid tribute to five of their colleagues whose service to the school totals 156 years. The five are Bradley M. Patten, Ph.D., retiring chairman of the department of anatomy, Dr. Cyrus C. Sturgis, chairman of the internal medicine department, and Dr. Frederick A. Coller, retired chairman of the surgery department. Elizabeth C. Crosby, Sc.D., professor of anatomy, and Dr. Ruth C. Wanstrom of the department of pathology, also were honored.

Rabies in Coyote.—The state health department has announced that rabies has been found in a coyote shot west of Newberry in the Upper Peninsula. No previous cases of rabid coyotes are listed in state health department records. Rabies had been reported in the Upper Peninsula since 1940. However, the disease has been epidemic in Canada just north of Sault Ste. Marie since 1954, and it is believed to have been brought into Michigan last winter by rabid wild animals that crossed the frozen St. Mary's River that separates Michigan from Canada in the Soo area. Chippewa County, in which Sault Ste. Marie is located, has reported several cases in animals, this year.

University Hospital Reports on Services.—The University of Michigan Medical Center, Ann Arbor, in a report on its activities during the fiscal year ending June 30, announced that hospital patients are taking more medicine, having fewer surgical operations and more babies, and are staying in the hospital a shorter length of time. Dr. Albert C. Kerlikowske, director, announced that the average length of stay of patients admitted to the University of Michigan Hospital reached a new low of 11.8 days, compared with 12.23 days the previous year, and an average of 16¼ days 10 years ago. Physical changes in the Center during the past year include the addition of a patient's chapel; a new kitchen capable of serving up to 10,000 meals daily to patients and staff; and a Poison Information Service for emergency consultation by doctors in the state; and remodeling of the Heart Station, main lobby and patient's rooms.

MISSOURI

Hospital Research Grants.—More than $133,000 in research grants has been received by investigators of the Research Institute of the Jewish Hospital of Saint Louis. Of this amount, $126,000 came from the Public Health Service's National Institutes of Health. Nearly $54,000 was awarded to Dr. Herman T. Blumenthal, director of the Institute of Experimental Pathology. Over $45,000 in NIH support was granted to Dr. Robert Goldstein, research audiologist, and Dr. Stanley R. Lang, research physiologist, was awarded $27,615 by the NIH.

NEW HAMPSHIRE

Dr. Robb Visiting Professor.—Dr. Jane Sands Robb, associate professor of pharmacology of the State University of New York Upstate Medical Center in Syracuse, has accepted position as visiting professor of pharmacology at Dartmouth Medical School, Hanover. For her studies on the anatomy and physiology of the heart and more recently on the effect of nerve stimulation and of drugs upon cardiac muscle fibers and nucleic acid derivatives, Dr. Robb has received the Bronze Medal of the Canadian and American Medical Association and first prize of the New York State Medical Association. She won the Elizabeth Blackwell Citation in 1953. Dr. Robb previously was professor of physiology of Woman's Medical College of Pennsylvania and was director of a laboratory of experimental pharmacology at the college and organized and became chief of the Cardiac Clinic at Woman's Hospital of Pennsylvania, in Philadelphia.

NEW JERSEY

Alumni Meeting in Jersey City.—The 11th annual program of the Jersey City Medical Center Alumni Association will be held Nov. 5. A clinicopathological conference will be held at 11 a. m. Dr. Carroll M. Leevy, associate professor of clinical medicine, Seton Hall College of Medicine, will moderate a symposium on infectious diseases at 2 p. m. Speaker at the banquet (7:30 p. m.) will be Dr. Chester S. Keefer, Boston, whose topic will be "What's Ahead for American Medicine."

NEW YORK

New Cases of Poliomyelitis.—The State Health Department has announced that 13 new cases of poliomyelitis, 6 of them paralytic, were reported in Upstate New York during the week ending Sept. 25. In the corresponding week in 1957, eight cases, of which four were paralytic, were reported.

From the first of the year through Sept. 25, a total of 113 cases of poliomyelitis has been reported, compared to 106 last year and an average of 1,165 for the years 1951 through 1953. Sixty-two of this year's cases were paralytic, compared to 49 last year and an average of 647 for the years 1951 through 1953.

The six paralytic cases reported for the week ending Sept. 25 occurred in persons who had not received the full series of three anti-poliomyelitis shots. So far this year, only nine of the paralytic cases have occurred in persons having the full series of three shots. Erie, Suffolk, and Westchester counties each reported two cases of paralytic poliomyelitis. The nonparalytic cases occurred in Suffolk (2), Dutchess (2), Broome, Jefferson, and Nassau counties.

New York City

Award University Medal.—The New York University Medal was presented Sept. 19 to Sir Harold Himsworth, K.C.B., secretary of the Medical Research Council of Great Britain. The medal which was conferred by NYU President Carroll V. Newsom is presented to "distinguished visitors" to the University. Sir Harold is the 12th recipient. The citation read in part ". . . Sir Harold Himsworth has distinguished himself as a medical scientist, educator and author, primarily in the field of metabolic diseases and nutritional disorders."

Establish Pollen Sampling Stations.—Ragweed pollen sampling stations went into operation recently in six New York State communities, it was announced by Dr. Herman E. Hilleboe, state health commissioner and chairman of the State Air Pollution Control Board. Until the first killing frost, the six-station network will report on airborne ragweed pollen concentrations in Islip, Johnson City, Syracuse, Albany, Pine Hills (Ulster County), and Poughkeepsie. The network is a part of the board's air pollution control program. Daily pollen counts will be made available to newspapers, radio and television stations. The counts will provide data for research and statistical purposes.

OKLAHOMA

Annual Clinical Conference in Oklahoma City.—The 28th annual fall conference of the Oklahoma City Clinical Society will be held at the Biltmore Hotel, Oklahoma City, Oct. 27-29. Guest lecturers include the following: Drs. C. Knight Aldrich, Edwin J. DeCosta, Claude N. Lambert, and John T. Reynolds, Chicago; James Barron, Detroit; Blair E. Batson, Jackson; Parker R. Beamer, Indianapolis; Louis A. Brunsting Sr., Rochester, Minn.; E. Grey Dimond, Kansas City; Harold Gifford Jr., Omaha; Isadore Meschan, Winston-Salem; Clarence T. Ray, Columbia, Mo.; Russell B. Roth, Erie, Pa.; John M. Sheldon, Ann Arbor, Mich.; and John Alexander Wall, Houston, Texas. Guest speaker at the banquet Oct. 27, will be Dr. Roth. Exhibits, luncheon discussions and a ladies program have been arranged. Registration fee is $20. For information write the Oklahoma City Clinical Society, 503 Medical Arts Building, Oklahoma City 2, Okla.

PENNSYLVANIA

Dr. Fischer Named Director of Health Service.—Dr. Carl C. Fischer, chairman, department of pediatrics, Hahnemann Medical College and Hospital, has been appointed health service director at Girard College, succeeding Dr. Edward L. Bauer, who retired Aug. 31. Dr. Fischer, who will retain his position at Hahemann but retire from 30 years of private practice, assumed his new duties at Girard College Sept. 2.

Dr. Hammon on Mission to Thailand.—Dr. William McD. Hammon, head, department of epidemiology and microbiology, University of Pittsburgh Graduate School of Public Health, left Sept. 11 for Bangkok, Thailand, where he will serve as consultant on an epidemic of an unidentified fever disease. His services were requested by the Thai government. During the last three months in the Bangkok area, an estimated 1,500 persons have been hospitalized and 300 have died of a disease principally affecting children under the age of 10. Thai health officials are said to believe the outbreak may be the same as Philippine hemorrhagic fever, a disease Dr. Hammon and his staff have been studying for two years.

WASHINGTON

Dr. Hogness Named Hospital Director.—The appointment of Dr. John R. Hogness, of Seattle, as medical director of the University Hospital has been approved by the Board of Regents. Dr. Hogness, who has been with the University of Washington School of Medicine on a half-time basis in recent years, will begin work as medical director at once on that basis, but will assume full-time duties when the hospital opens next May. Dr. Hogness will supervise teaching activities related to patient care in the hospital and will coordinate referral of patients by physicians in all parts of the state. He will also continue teaching and research activities in the department of medicine. Dr. Hogness is a former secretary-treasurer of the King County Medical Society, and is now secretary-treasurer of the Northwest Society for Clinical Research.

WEST VIRGINIA

Physicians on School Boards.—At least 15 members of the West Virginia State Medical Association have been elected members of county boards of education. Of the 15, there are 12 already serving, and 3 will take office Jan. 1, 1959. A few counties have not yet reported to the State Department of Education, so the complete list of members of county boards of education is not available. The following physicians are now serving as members of the county boards of education: Drs. Herbert M. Beddow, Charleston; Arthur B. Carr, War; Homer O. Van Tromp, French Creek; Paul L. McCuskey, Parkersburg; Guy H. Michael, Parsons; Flavius C. Chandler, Bridgeport; Edward B. Randolph, Clarksburg; Ralph M. Fisher, Weston; Clark K. Sleeth, Morgantown; James W. Stokes, Hinton; Richard F. Miller, Paden City; Clinton W. Stallard Jr., Montgomery. The following members of boards, elected at the August primary, who will take office Jan. 1 include Dr. Carl C. Tully, of South Charleston; Dr. George W. Rose, Clarksburg; and Dr. William F. Daniels, of Huntington.

GENERAL

Meeting on Psychiatry in Brooklyn.—The third annual meeting of the Eastern Psychiatric Research Association, will be held Oct. 23-25 at the Brooklyn State Hospital, Brooklyn. Dr. Nathan Beckenstein, director of the hospital, will open the meeting with an address "Various Types of EST and Their Indications". A symposium, "Building Stones for a Biologic or a Preventive Psychiatry," will include the following: Biochemical Aspects, Personality Aspects, Conditioning Aspects, and Social Psychiatric Aspects. Dr. Charles Buckman will present "Reappraisal of the Effectiveness of Various Electrostimulative Technics Including ECT" with demonstrations.

Grants for Cancer Research.—Seven contracts totalling $256,986 for research on improved methods of testing possible anticancer agents and for related work have been announced by the Public Health Service. Four contracts are for studying new testing methods. Included in this work will be methods using tissue culture, bacteria, and a number of animal tumors. These contracts are with Michigan Department of Health, Lansing, $26,867; University of Virginia, Charlottesville, $25,155; Children's Cancer Research Foundation, Inc., Boston, $70,011; and University of Miami, Miami, Fla., $49,450. The three remaining contracts are for producing mice and rats needed in chemotherapy studies and related work. The contracts will be administered by the Cancer Chemotherapy National Service Center at the National Cancer Institute, Bethesda, Md.

Fellowships for Pediatric Study.—Grants providing for postgraduate pediatric studies will be awarded again in 1959 by Wyeth Laboratories, Dr. Philip S. Barba, past-president of the American Academy of Pediatrics, has announced. Wyeth, a pharmaceutical manufacturing firm, will award 20 two-year grants, each carrying an annual stipend of $2,400. The first three years of the program will cost $195,000. Candidates may include interns, physicians who have recently completed their internship, military service, and research fellows. Recipients who must be citizens of the U. S. or Canada, may attend any hospital whose residency program is properly accredited by the Residency Review Committee of the American Board of Pediatrics. Serving with Dr. Barba on the fellowship selection committee are Dr. John A. Anderson, Minneapolis; Dr. Amos Christie, Nashville, Tenn.; Dr. Hugh A. Carithers Jr., Jacksonville, Fla.; and Dr. A. Crawford Bost, San Francisco. Application for fellowships must be submitted by Nov. 28 to a committee member. The grants will be effective on July 1, 1959. Information and applications may be obtained from Dr. Barba at the University of Pennsylvania School of Medicine.

Annual Meeting on Preventive Medicine.—The American College of Preventive Medicine will hold its annual meeting Oct. 29-30 in St. Louis, with headquarters at the Sheraton-Jefferson Hotel. The Annual Lectureship will be given Oct. 29, 8 p. m., in the Ivory Room of the hotel by Dr. Irvine H. Page, Cleveland, on "Arteriosclerosis—Its Multifaceted Nature." A business meeting will follow. The session on Oct. 30 will be held in Assembly Hall No. 2 of the Kiel Auditorium, 9:45 a. m.; speakers will present the following topics:

The Federal Government and the National Health, Dr. Aims C. McGuinness, Washington, D. C.
Programmatic Research in the Fields of Health, Dr. Kenneth M. Endicott, Bethesda, Md.
Living in a Radioactive World, Dr. Thomas L. Shipman, Los Alamos, N. M.
Physiological Problems of Space Flight, Dr. Stanley C. White, Wright-Patterson AFB, Ohio.

Currently, the officers of the College are: president, Dr. Vivian A. Van Volkenburgh, Albany; president-elect, Dr. Louis C. Kossuth, Colorado Springs; vice-presidents, Dr. Charles E. Smith, Berkeley; Dr. George K. Fair, Washington; Dr. James H. Sterner, Rochester; secretary-treasurer, Dr. John J. Wright, Chapel Hill.

Fellowships in Pediatrics.—The American Academy of Pediatrics will grant 18 or more fellowships to pediatric residents for the fiscal year 1959-1960 and covering a period of six months to one year. These fellowships have been created to enable young physicians, who are legal residents of the United States or Canada and who are in financial need, to complete their pediatric training. The fellowships which carry a stipend of $500 to $1,000, have been made possible by a grant to the Academy from Mead Johnson & Company. They will be granted as of July 1, 1959.

Requirements are: (1) a letter from the chief of service indicating that the proposed individual has completed or will have completed by July 1, 1959, one year of pediatric training credited by the American Board of Pediatrics; that the resident has performed his work ably; and that there is real need for financial assistance; (2) a letter from the resident who is requesting the fellowship stating that he intends to enter pediatric private practice at the conclusion of his residency training. Up to 25% of the fellowships may be awarded to those who desire a third or fourth year of residency before entering private practice. Those interested in applying may correspond with the American Academy of Pediatrics, 1801 Hinman Ave., Evanston, Ill.

Annual Heart Association Meeting in San Francisco.—Ninety original scientific papers will be presented at the American Heart Association's 31st annual scientific sessions in San Francisco's Civic Center, Oct. 24-26. In addition, there will be about 30 papers read by invited speakers. A scientific session for clinicians Oct. 24 under sponsorship of the Council on Clinical Cardiology will include symposiums on "Congenital Heart Disease," "Treatment of Intravascular Clotting," and "Peripheral Arterial Insufficiency." A panel discussion, "What's New in Arrhythmias," will be held. These sessions have been classified by the American Academy of General Practice as acceptable for credit. A joint session of the American Society for the Study of Arteriosclerosis and the American Heart Association is planned for Oct. 14. The Lewis A. Conner Memorial Lecture will be given at a general session on Applied Cardiovascular Research by Dr. John H. Gibbon Jr., Philadelphia, on "Maintenance of Cardio-Respiratory Functions by Extracorporeal Circulation," and the George E. Brown Memorial Lecture by Dr. Lewis Thomas, New York City, on the "Role of Hypersensitivity in Cardiovascular Disease." On Oct. 25 panels on Arteriosclerosis will be presented jointly with the A. S. S. A. A special program, "Rewards of Research," followed by a session on Rheumatic Fever Secondary Prevention Programs are planned for the afternoon of Oct. 26, with the association's annual dinner to be held at the Fairmont Hotel that evening. A medical film program and a section of scientific and industrial exhibits are arranged. For information write the American Heart Association, 44 E. 23rd St., New York 10.

Meeting of Surgeons in Hot Springs, Va.—The United States Section, International College of Surgeons, will hold its Mid-Atlantic regional meeting at the Homestead, Hot Springs, Va., Nov. 17-18. Two panel discussions are planned: "Head, Neck, Shoulder, Arm Syndrome Following Cervical Injury," moderated by Dr. Khalil G. Wakim, Rochester, Minn., and "Management of Acute Surgical Emergencies Due to Trauma," moderated by Dr. James W. Watts, Washington, D. C. The scientific program includes the following papers:

Manifold Value of Endoscopic Photography in Surgery, Dr. Lowrain E. McCrea, Philadelphia.
Surgical Management of the Horseshoe Kidney, Dr. Theodore R. Fetter, Philadelphia.
New Details in Corrective Surgery for External Nasal Deformities, Dr. Albert P. Seltzer, Philadelphia.
Carcinoma of the Right Colon, Dr. Russell V. Buxton, Newport News, Va.
Application of Plastic Surgery Principles in Orthopedic Surgery, Dr. Roy R. Raub, Bluefield, Va.
Present Status of Adenotonsillectomy, Dr. Francis H. McGovern, Danville, Va.
Pathological Physiology of Diaphragmatic Esophageal Haital Hernia, Dr. Samuel Randolph Penn, Waynesboro, Va.
Parathyroid Diseases, Dr. Henry F. Warden, Bluefield, Va.
Care and Rehabilitation in Major Industries by a Modern Steel Industry Medical Department, Dr. James L. Thompson, Weirton, W. Va.
Use of Roux-Y-Anastomosis in Pancreatic Disease, Dr. Alva H. Letton, Atlanta.

A movie, "Simplified Techniques in Cataract Surgery," will be given by Dr. Elbyrne G. Gill, Roanoke, Va. For information write to Dr. Gill at 711 Jefferson St. South, Roanoke 13, Va.

Fellowships for Study in Respiratory Diseases.—The medical section of the National Tuberculosis Association, the American Trudeau Society, provides a limited number of fellowships to promote the training of clinicians, medical teachers, and scientific investigators in tuberculosis and respiratory diseases. Awards are open to citizens of the U. S. for work in this country. Candidates holding the degrees of M.D., Ph.D., or Sc.D. are eligible for awards making possible continuation of graduate study in the field of respiratory diseases in an approved hospital or medical center. Residency in an approved hospital under such a fellowship will be credited by the American Board of Internal Medicine toward certification in internal medicine and pulmonary diseases. Predoctoral fellowships are also offered to graduate students who hold a bachelor's degree and are working on a research project for an advanced degree other than an M.D. Each applicant must have the approval of the head of the department under whom he expects to work. Awards are determined by individual circumstances and are paid directly to the fellow on a quarterly basis. Fellowships, granted for one year (not more than two renewals will be considered), must be applied for by December 1. Appointments may begin on any date.

A few fellowships at a higher level of training and award are offered to specially qualified candidates with an M.D. degree who have been assured of a continued teaching or research appointment upon completion of training. Trudeau Fellowships are awarded for one year but may be renewed up to a total period of four years. Information may be obtained upon request from the Director of Medical Education, American Trudeau Society, c/o The Henry Phipps Institute, Seventh and Lombard Streets, Philadelphia 47.

CANADA

Annual Meeting on Fertility.—The fifth annual meeting of the Canadian Society for the Study of Fertility will be held Oct. 31-Nov. 1 in London, Ontario. Speakers from the United States will include Dr. Lawson Wilkins, Baltimore, and John Buettner-Janusch, M.A., New Haven, who will present "Masculinization of the Female Foetus Following the Administration of Progestons to the Mother" and "Role of the A B A (H) Blood Group System in Human Sterility and Habitual Abortion," respectively. Other topics and speakers are:

Psychogenic Factors in Infertility, Drs. Robert A. Cleghorn and Carlo G. Bos, Montreal.
Occult Vaginal Bleeding, Dr. Abraham Hurtig, Ottawa.
Endocrine Disturbances Caused by Pituitary and Hypothalmic Tumours, Dr. John C. Beck, Montreal.
Role of Vaginal Cytology in Endocrine Disturbances, Dr. Jack H. Walters, London.
Considerations on Hysterosalpingography by Cinematography and Utero-Tubal Kymographic Insufflation, Dr. Samuel Letendre, Monreal.

A discussion on new approaches to the problem of infertility is planned. For information write Dr. Jean F. Campbell, Secretary-Treasurer, Canadian Society for the Study of Fertility, 238 Queen's Ave., London, Ontario, Canada.

CORRECTION

Spinal-Tap Headache.—In the article on "Technique to Avoid Spinal-Tap Headache" in The Journal, Sept. 20, page 262, in the second paragraph, line 7, under "Method," the word "decrease" should have read "increase."

EXAMINATIONS AND LICENSURE

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES, INC.

Educational Council for Foreign Medical Graduates, Inc.: The American medical qualification examination to be given henceforth twice a year for foreign medical graduates. Medical Schools in the United States and Foreign Countries, Sept. 23. Final date for filing application was June 23. Dates for the 1959 examinations have been set for Feb. 17 and Sept. 22. Executive Director, Dr. Dean F. Smiley, 1710 Orrington Ave., Evanston, Illinois.

BOARDS OF MEDICAL EXAMINERS

Alaska:[*] On application in Anchorage and Juneau. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.
California: *Written Examination.* Sacramento, Oct. 20-23. *Oral Examination.* San Francisco, November 15. *Oral and Clinical Examination for Foreign Medical School Graduates.* San Francisco, June 15; Los Angeles, August 17; San Francisco, November 16. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.
Colorado: *Endorsement.* Denver, Oct. 14. *Written.* Denver, Dec. 9-10. Exec. Sec., Mrs. Beulah H. Hudgens, 715 Republic Bldg., Denver 2.
Guam: *Subject to Call.* Act. Sec., Dr. F. L. Conklin, Agana.
Maine: *Examination and Reciprocity.* Portland, Nov. 12-14. Sec., Dr. Adam P. Leighton, 142 High St., Portland.
Montana: *Examination and Reciprocity.* Helena, Oct. 7. Sec., Dr. Thomas L. Hawkins, 555 Fuller Ave., Helena.
New Mexico:[*] *Examination and Reciprocity.* Santa Fe, Nov. 17-18. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.
Ohio: *Examination.* Columbus, Dec. 16-18. *Endorsement.* Columbus, August 18; October 6 and Dec. 16-18. Sec., Dr. H. M. Platter, Wyandotte Bldg., Columbus 15.
South Carolina: *Endorsement.* Columbia, Dec. 9. Sec., Dr. H. E. Jervey, Jr., Blanding Bldg., Columbia.
Texas:[*] *Examination and Reciprocity.* Fort Worth, Dec. 4-6. Sec., Dr. M. H. Crabb, 1714 Medical Arts Building, Fort Worth 2.
Wisconsin: *Reciprocity.* Madison, Oct. 16-18. Sec., Dr. Wm. H. Barber, 621 Ransom St., Ripon.
Wyoming: *Examination and Reciprocity.* Cheyenne, Oct. 6. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: *Examination.* Juneau, Nov. 4. Sec., Dr. R. Harrison Leer, Room 204, Alaska Office Bldg., Juneau.
Arkansas: *Examination.* Little Rock, Oct. 6-7. Sec., Dr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.
District of Columbia: *Reciprocity. Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington 6.
Kansas: *Examination and Reciprocity.* Kansas City, Nov. 24-25. Sec., Dr. L. C. Heckert, Pittsburg.
Michigan: *Examination.* Ann Arbor and Detroit, Oct. 10-11. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., W. Michigan Ave., Lansing 15.
Texas: *Examination.* Oct. 13-14. Certificates issued by reciprocity and waiver on the first and fifteenth of each month. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.
Wisconsin: *Examination.* Milwaukee, Dec. 6. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

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[*] Basic Science Certificate required.

GOVERNMENT SERVICES

AIR FORCE

Consultants and Command Surgeons Conference.—The surgeon general convened a three-day National Consultants and Command Surgeons Conference at Andrews Air Force Base Hospital, Washington, D. C., on Sept. 3, to provide an interchange of the latest military and civilian medical thinking and techniques.

Guest speakers were Dr. William N. Hubbard Jr., associate dean of New York University College of Medicine, who spoke on medical education, and Dr. Lawrence E. Lamb of the U. S. A. F. School of Aviation Medicine, Randolph Air Force Base, Texas, who presented the problems of syncope.

The consultants who made presentations on their respective specialties were Dr. Conrad G. Collins, Tulane University School of Medicine, New Orleans, obstetrics and gynecology; Dr. Charles E. Smith, University of California, Berkeley, preventive medicine; Dr. Clarence C. Pearson, Seattle, internal medicine; Dr. Louis J. West, University of Oklahoma Medical Center, psychiatry; Dr. Edgar J. Poth, University of Texas Medical Branch, Galveston, Surgery; Dr. Sidney S. Chipman, University of North Carolina, Chapel Hill, pediatrics; Kenneth A. Easlick, D.D.S., University of Michigan, dental care; Dr. Clair M. Kos, State University of Iowa, Iowa City, otolaryngology.

NAVY

Establish Course in Nuclear Nursing.—A new phase in the education of military nurses began at the Naval Medical School, Bethesda, Md., on Sept. 2, when the first course in the nuclear field ever to be offered nurses in the United States got under way. The course was planned because (1) in medicine, the field of radioisotopes is rapidly expanding and "nursing participation" is required and (2) in the fleet, the advancement in the Navy's nuclear power program demands "nursing readiness."

The four-month course which includes instruction in the principles underlying radioisotope therapy and procedures for the care of mass casualties is under the direction of Capt. E. Richard King, M.C., director of the medical school's department of nuclear medicine.

Physicians from Twelve Nations Attend Training Program.—Twenty-two military medical officers representing the armed forces of 12 nations convened at the Naval Medical School, Bethesda, Md., Sept. 2, under a 10-week training program sponsored by the Chief of Naval Operations, Admiral Arleigh Burke, U. S. N. Senior officers are studying naval hospital management; junior officers, preventive medicine. Rear Admiral Bartholomew W. Hogan, the surgeon general, welcomed the student officers.

The course in hospital management consists of a review of the theory and principles of hospital management and their special application to the operation of military hospitals. The preventive medicine course consists of a review of modern preventive medicine as it applies to troops afloat and ashore. Field trips are planned to medical, military, industrial, and cultural activities east of the Mississippi. Outstanding speakers from civilian and military activities comprise the teaching staff.

PUBLIC HEALTH SERVICE

Report on Radioactivity in Milk.—The Public Health Service reported Sept. 19 that tests for radioactivity in milk from nine locations in the United States showed amounts well within the permissible levels recommended by the National Committee on Radiation Protection and Measurement. The report covers the months of May, June, and July and brings up to date the findings of the study initiated by the Public Health Service in the spring of 1957.

Composite milk samples were analyzed by the service to measure amounts of specific radioisotopes, including strontium-90. It takes at least six weeks to complete the laboratory analyses of the samples and tabulate the results.

The maximum permissible levels recommended by the National Committee on Radiation Protection and Measurement are specifically for water but have been generally accepted in practice as being applicable also to milk. These limits represent concentrations which are currently considered safe over a lifetime and which may occasionally be exceeded for short periods of time.

Immunization Information for International Travel.—A new edition of the booklet "Immunization Information for International Travel" has been issued by the Public Health Service. It is designed primarily for travelers going abroad and for health departments and physicians. It gives current details on immunization requirements for persons entering the United States, including Americans returning from abroad. It lists requirements for immunization in 200 other countries. Information on bringing pets into the United States from other countries is included.

The booklet is for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C., for 30 cents.

DEATHS

Anderson, James Harlan, Aurora, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; served on the staffs of the Copley and St. Joseph's hospitals; died Aug. 7, aged 73, of cerebral hemorrhage.

Anthony, Walter E. Ⓜ Ottumwa, Iowa; Jefferson Medical College of Philadelphia, 1912; veteran of World War I; medical examiner for the local draft board during World War II; on the staffs of the Ottumwa and St. Joseph Mercy hospitals; died Aug. 22, aged 69, of coronary thrombosis.

Banks, William Henry, San Francisco; Cooper Medical College, San Francisco, 1904; an associate member of the American Medical Association; died in Decoto Aug. 20, aged 84.

Barber, Thomas Maxfield Ⓜ Charleston, W. Va.; Medical College of Virginia, Richmond, 1917; member of the American Academy of General Practice and past-president of the West Virginia Chapter; past-president and treasurer of the Kanawha County Medical Society; for 31 consecutive years treasurer of the West Virginia State Medical Association and last August was reelected for his 32nd consecutive term; veteran of World War I and was awarded the Distinguished Service Cross; vice-president of the Children's Home Society of West Virginia; on the staff of Charleston General Hospital; died Aug. 26, aged 64, of coronary occlusion.

Barnes, Bruce Smith Ⓜ Lancaster, Texas; Indiana University School of Medicine, Indianapolis, 1944; interned at the Indianapolis City Hospital; served a residency at the Methodist Hospital in Dallas; veteran of World War II; associated with Chester Clinic and Hospital; died in Galveston Aug. 17, aged 37, of coronary occlusion.

Barnett, Jacob, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1897; an associate member of the American Medical Association; fellow of the American College of Surgeons; on the staffs of the Charity Hospital and the Touro Infirmary, where he died Aug. 22, aged 82, of arteriosclerotic heart disease and chronic glomerular nephritis.

Barrett, Michael Francis Ⓜ Brockton, Mass.; born in Hingham in 1875; Harvard Medical School, Boston, 1901; fellow of the American College of Surgeons; past-president of the Brockton Medical Society; served the Brockton Hospital as president of the medical staff, a member of the executive committee of the medical staff, on the executive committee of the board of trustees, and as a trustee at the hospital from 1939; continued to be a member of the special consulting staff in surgery at the hospital until his death; became a trustee at Phaneuf Hospital in 1938 and served as chief of surgery until his retirement in 1957; last year at a dinner given in his honor, the doctors, nurses, and administrative personnel of the hospital presented him with an oil painting of himself; died in the Brockton Hospital Aug. 13, aged 82, of spontaneous subdural hematoma.

Barrymore, Eugene Ⓜ Bowling Green, Mo.; St. Louis University School of Medicine, 1907; died in Veterans Administration Hospital, St. Louis, July 12, aged 79, of acute myocardial infarction.

Beckwith, Henry Witter, Lynn, Mass.; Dartmouth Medical School, Hanover, N. H., 1902; died in Nahant Aug. 6, aged 89, of hypostatic pneumonia.

Beede, Ralph Worthing Ⓜ Youngstown, Ohio; Ohio State University College of Medicine, Columbus, 1937; member of the American Academy of General Practice; on the staff of the South Side Unit of the Youngstown Hospital; died Aug. 19, aged 63, of a self-inflicted bullet wound in the head.

Bell, James Edgar, Trafford, Ala.; University of Nashville (Tenn.) Medical Department, 1897; member of the Medical Association of the State of Alabama; died July 24, aged 84, of arteriosclerotic heart disease.

Binter, Paul Albert Ⓜ Wichita, Kan.; University of Kansas School of Medicine, Kansas City, 1942; specialist certified by the American Board of Internal Medicine; veteran of World War II; associated with St. Francis, St. Joseph, Wesley, and Veterans Administration hospitals; died Aug. 26, aged 43, of coronary occlusion.

Blake, Wendell Phillipps Ⓜ Captain, U. S. Navy, retired, Washington, D. C.; College of Physicians and Surgeons, Los Angeles, 1913; entered the U. S. Navy in May 1920; retired Jan. 1, 1946; service member of the American Medical Association; died June 25, aged 69, of coronary occlusion.

Bosenbury, Charles Searles Ⓜ Coral Gables, Fla.; Rush Medical College, Chicago, 1903; member of the Indiana State Medical Association; for many years practiced in South Bend, Ind., where he was city health officer; veteran of World War I; died in the Doctor's Hospital Aug. 22, aged 81.

Ⓜ Indicates Member of the American Medical Association.

Bradford, William Herbert Ⓜ Portland, Maine; Medical School of Maine, Portland, 1891; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; served on the faculty of his alma mater; past-president of the Cumberland County Medical Society; a founder and past-president of the New England Surgical Society; on the medical advisory board of Cumberland County during World War I; member of the *consulting staff, Webber Hospital, Biddeford,* Maine Eye and Ear Infirmary, Maine General Hospital, Bath (Maine) Memorial Hospital, and the Children's Hospital; died Aug. 21, aged 92, of bronchopneumonia and arteriosclerotic heart disease.

Brody, Arnold Warren, Chicago; Chicago Medical School, 1955; certified by the National Board of Medical Examiners; resident at the Cook County Hospital; died Aug. 19, aged 29, of chronic glomerulonephritis.

Brumfiel, Daniel Milton Ⓜ Saranac Lake, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1924; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Trudeau Society; past-president of the Franklin County Medical Society; vice-president of the Saranac Lake Tuberculosis Society; associated with Lake Placid (N. Y.) Memorial Hospital and the Saranac Lake General Hospital; died Aug. 20, aged 68, of cancer.

Bruno, John Robert Ⓜ Conshohocken, Pa.; Jefferson Medical College of Philadelphia, 1941; formerly an officer in the U. S. Navy; veteran of World War II; on the courtesy staff of the Sacred Heart Hospital, Norristown, where he died Aug. 26, aged 43, of hemorrhagic pancreatitis.

Busman, George J. Ⓜ Pittsburgh; University of Michigan Medical School, Ann Arbor, 1918; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; served on the faculty of the University of Pittsburgh School of Medicine; entered the Mayo Foundation in Rochester, Minn., as a fellow in dermatology in 1918 and left in 1922; on the staffs of the Roselia Foundling Asylum and Maternity Hospital and the Mercy Hospital, where he died Aug. 17, aged 66, of aneurysm of the aorta.

Clancy, Frank Jeffery Ⓜ Seattle; born in Everett, Wash., July 12, 1892; University of Oregon Medical School, Portland, 1918; in 1936-1937 director of the Bureau of Investigation of the American Medical Association; past-president of the Washington State Urological Association; member of the American Urological Association; fellow of the American College of Surgeons; served as chairman of the Public Health League of Washington; associated with Doctors and Columbus hospitals; veteran of World War I; author of "Doctor, Come Quickly"; died Aug. 8, aged 66, of hepatitis and diabetes mellitus.

Corry, Lawrence Fitzgerald Ⓜ Menasha, Wis.; St. Louis University School of Medicine, 1926; on the staff of the St. Elizabeth Hospital, Appleton, where he died Aug. 2, aged 55, of hypertensive cardiovascular disease and uremia.

Durham, Silas Lucius Ⓜ Dearborn, Mo.; Tulane University School of Medicine, New Orleans, 1913; president of the Platte County Medical Society; on the staff of the Missouri Methodist Hospital in St. Joseph; died Aug. 14, aged 74.

Faltin, Ladislaus Ⓜ South Bend, Ind.; Universita Karlova Fakulta Lekarska, Praha, Czechoslovakia, 1921; specialist certified by the American Board of Internal Medicine; served on the staff of St. Joseph Hospital; died in St. Francis Hospital, Miami Beach, Fla., Aug. 17, aged 62, of cerebral hemorrhage.

Farrell, Charles Vincent Ⓜ Bellingham, Wash.; St. Louis University School of Medicine, 1924; member of the American Academy of General Practice; died in St. Joseph's Hospital Aug. 14, aged 64, of recurrent coronary thrombosis with myocardial infarction.

Fearrington, James Cornelius Pass Ⓜ Winston-Salem, N. C.; Rush Medical College, Chicago, 1930; associate professor of clinical internal medicine at Bowman Gray School of Medicine of Wake Forest College; on the staffs of the City Memorial and North Carolina Baptist hospitals; died Aug. 10, aged 59.

Feltenstein, David William, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1887; College of Physicians and Surgeons of Chicago, 1888; died in Kansas City June 27, aged 88, of myocardial infarction.

French, Oscar William, O'Neill, Neb.; University of Nebraska College of Medicine, 1920; member of the American Academy of General Practice; on the staff of St. Anthony's Hospital; died in the Saunders County Hospital, Wahoo, Aug. 3, aged 66, of cardiovascular renal disease and cerebral thrombosis.

Gray, George Morris Ⓜ Kansas City, Kan.; born in Waukegan, Ill., March 4, 1856; Kansas City (Mo.) Medical College, 1879; Bellevue Hospital Medical College, New York City, 1880; clinical professor emeritus of surgery at University of Kansas School of Medicine; past-president of the Kansas Medical Society, of which he was treasurer for many years;

past-president of the Wyandotte County Medical Society and the Kansas City Academy of Medicine; member of the Western Surgical Association; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association, 1913, 1922 and 1923; served as mayor during a period in 1906-1907; from Dec. 10, 1917, to Jan. 4, 1919, when he was a member of the medical corps of the U. S. Army, served as medical military aide to the governor; became a member of the surgical staff of St. Margaret's Hospital, when it opened and served as chief of the surgical staff for many years; served as county physician and county coroner; honorary chairman of the board of the Riverview State Bank, of which he was a director for many years; honorary member of the board of the Security National Bank; chairman of the board of the Victory State Bank; died in St. Margaret's Hospital Aug. 12, aged 102, of arteriosclerotic cardiovascular renal disease.

Johnston, Edward Estill, Elizabethtown, Ky.; Indiana University School of Medicine, Indianapolis, 1915; member of the Kentucky State Medical Association; veteran of World Wars I and II; died Aug. 8, aged 66.

Katz, Maxwell Clarence, Kings Point, N. Y.; Long Island College Hospital, Brooklyn, 1912; died Aug. 16, aged 65, of cardiac decompensation and coronary occlusion.

Kun, Bertram Bela Ⓜ Jersey City, N. J.; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1928; member of the American College of Chest Physicians; veteran of World War II; associated with Jersey City Medical Center, Christ and Fairmont hospitals; died Aug. 7, aged 56, of coronary occlusion.

McGhee, Saylor John Ⓜ Lock Haven, Pa.; Jefferson Medical College of Philadelphia, 1898; past-president of the Clinton County Medical Society; president of the Lock Haven Joint School Board; a director of the Lock Haven Trust Company Bank; on the staff of the Lock Haven Hospital, where he died Aug. 9, aged 86.

Mayer, Willard D. Ⓜ Detroit; Jefferson Medical College of Philadelphia, 1912; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served on the faculty of Wayne University College of Medicine; veteran of World War I; on the staff of the Harper Hospital; consulting physician, City of Detroit Receiving Hospital; died Aug. 8, aged 68, of heart disease.

Meehan, Patrick Joseph Ⓜ Lowell, Mass.; Tufts College Medical School, Boston, 1904; veteran of World War I; served as trustee of the Tewksbury (Mass.) State Hospital, where he was assistant superintendent; died in the Veterans Administration Hospital, Boston, Aug. 4, aged 79, of bronchopneumonia, pulmonary edema, chronic pyelonephritis, fracture of the left hip, and diabetes mellitus.

Menger, Louis Charles Ⓜ Kew Gardens, N. Y.; Long Island College Hospital, Brooklyn, 1910; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; on the staff of the Brooklyn Eye and Ear Hospital; died in the New York Medical School and Hospital, New York City, Aug. 19, aged 70.

Mertz, Albert Adolph Ⓜ Decatur, Ill.; University of Michigan Medical School, Ann Arbor, 1909; veteran of World War I; served as secretary of the Macon County Medical Society; died in the Decatur and Macon County Hospital Aug. 7, aged 76.

Mockett, Percy Charles, Kimball, Neb.; Denver College of Medicine, 1901; died in the Emory John Brady Hospital, Colorado Springs, Colo., May 26, aged 84, of arteriosclerotic heart disease.

Mundhenk, Herbert Conner, Dayton, Ohio; Jefferson Medical College of Philadelphia, 1902; died in the Good Samaritan Hospital Aug. 8, aged 80, of coronary thrombosis.

Neilson, Charles Hugh Ⓜ St. Louis; born in 1871; Rush Medical College, Chicago, 1905; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; professor of internal medicine at St. Louis University School of Medicine, where he was for many years associate dean; past-president of St. Louis Medical Society; served on the staffs of St. Louis City Hospital and St. Mary's Group of Hospitals; formerly chief of staff, Alexian Brothers Hospital; on the staff of St. John's Hospital, where he served as chief, department of internal medicine, and where he died Aug. 12, aged 87, of cancer.

Perkins, Orman Clarence Ⓜ Brooklyn; born in Newbourg, Maine, April 23, 1892; Long Island College Hospital, Brooklyn, 1921; formerly on the faculty of his alma mater; veteran of World Wars I and II; fellow of the American College of Physicians; member of the Association for Research in Nervous and Mental Diseases; served on the staffs of the Creedmore State Hospital in Queens Village, Kings County, Long Island College, Bushwick, Brooklyn, Caledonian, Brooklyn State, Kingston Avenue, and Swedish hospitals and Norwegian Lutheran Deaconesses' Home and Hospital; consulting neurologist, Central Islip (N. Y.) State Hospital, Rockaway Beach (N. Y.) Hospital, Southside Hospital, Bayshore, Victory Memorial, Bethany Deaconess, Evangelical Deaconess, Methodist, and Veterans Administration hospitals; died in Crawford Notch, N. H., Aug. 18, aged 66.

Rockwell, John Arnold Ⓜ Cambridge, Mass.; Boston University School of Medicine, 1899; served on the faculty of his alma mater; for many years associated with the Massachusetts Memorial Hospital, Boston, Mount Auburn Hospital in Cambridge, and the Hahnemann Hospital in Boston, where he died July 23, aged 86, of cancer.

Sartor, Pierre Ⓜ Titonka, Iowa; Bennett College of Medicine and Surgery, Chicago, 1896; past-president and secretary of the Kossuth County Medical Society; for many years health officer of Titonka, served on the town council, and was a member of the Chamber of Commerce; an honorary member of St. Ann Hospital staff in Algona; for 34 years physician for the Rock Island Railroad; died in Algona Aug. 5, aged 86, of cerebral thrombosis and bronchopneumonia.

Shahan, William Ewing Ⓜ St. Louis; born in 1877; Washington University School of Medicine, St. Louis, 1904; professor emeritus of ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; on the staffs of St. Luke's, Barnard Free Skin and Cancer, Barnes, St. Louis Children's, and St. Louis Maternity hospitals; died in Central Lake, Mich., Aug. 11, aged 81, of heart disease.

Shimer, Harry A. Ⓜ Bedford, Pa.; University of Maryland School of Medicine, Baltimore, 1910; vice-president of the school board and the First National Bank; on the staff of the Bedford County Memorial Hospital; died in Altoona (Pa.) Hospital Aug. 8, aged 73, of uremia.

Talbott, Edward Melville Ⓜ Colonel, U. S. Army, retired, San Francisco; Georgetown University School of Medicine, Washington, D. C., 1901; service member of the American Medical Association; in the Army until 1922, serving in Cuba, Mexico, the Philippines and in Europe in World War I; died in the Letterman Army Hospital Aug. 16, aged 80, of myocardial infarction and coronary thrombosis.

Tannhauser, Siegfried Ⓜ Buffalo; Albert-Ludwigs-Universitat Medizinische Fakultat, Freiburg, Baden, Germany, 1922; assistant professor of pathology at the University of Buffalo School of Medicine; specialist certified by the American Board of Pathology; fellow of the College of American Pathologists; member of the American Association of Pathologists and Bacteriologists; past-president of the Buffalo Pathological Society; since 1943 pathologist at the Deaconess Hospital; formerly pathologist at the Desert Sanatorium, Tucson, Ariz.; died Aug. 12, aged 61, of coronary thrombosis.

Vandemark, Walter Elbert Ⓜ Sioux Falls, S. D.; Harvard Medical School, Boston, 1942; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; certified by the National Board of Medical Examiners; at one time on the faculty of the University of South Dakota School of Medical Sciences, Vermillion; on the staffs of the Sioux Valley and McKennan hospitals; died Aug. 8, aged 43, of cerebral hemorrhage resulting from a fall.

Vaux, Norris Wistar, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1905; served as secretary of health, Pennsylvania Department of Health; formerly on the faculty of Jefferson Medical College; past-president of the American Gynecological Society; veteran of World War I; at one time on the staff of the Pennsylvania Hospital; specialist certified by the American Board of Obstetrics and Gynecology; died in Ventnor, N. J., Aug. 19, aged 76.

Vehrs, George Rudolph, Eugene Ore.; Jefferson Medical College of Philadelphia, 1916; died Aug. 2, aged 68, of pneumonia and Parkinson's disease.

Weinberger, William Ⓜ New York City; Medizinische Fakultat der Universitat, Vienna, Austria, 1894; associated with the Morrisania Hospital; died in the Lebanon Hospital Aug. 15, aged 88, of leukemia.

Weitz, Franklin Mathias Ⓜ Buffalo; University of Buffalo School of Medicine, 1933; served as school doctor for the board of education; member and past-president of the staff of the Mercy Hospital; died in Angola, N. Y., Aug. 6, aged 49.

Wilcox, Ernest Hatch Ⓜ Pleasantville, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1923; fellow of the American College of Surgeons; on the staff of the Northern Westchester Hospital in Mount Kisco and Grasslands Hospital in Valhalla; died in the Moses Ludington Hospital, Ticonderoga, Aug. 13, aged 58.

Wittenberg, Carlton Emil Ⓜ Woodstock, Ill.; University of Illinois College of Medicine, Chicago, 1935; veteran of World War II; associated with the Brokaw Hospital in Bloomington and the Memorial Hospital, where he died Aug. 21, aged 51, of coronary occlusion.

Witter, Calvin Bassler, Agoura, Calif.; Albany (N. Y.) Medical College, 1909; an associate member of the American Medical Association; died Aug. 9, aged 76.

Wright, John Francis Ⓜ Toledo, Ohio; University of Wooster Medical Department, Cleveland, 1903; veteran of World War I; associated with St. Vincent's Hospital, where he died Aug. 12, aged 78, of arteriosclerosis.

FOREIGN LETTERS

BELGIUM

Retinal Detachment.—The method of pyrometric diathermocoagulation developed by L. Coppez in 1932 is still used in the ophthalmological clinic at Brussels University. From 1949 to 1954, Coppez and Szucs operated on 243 eyes with retinal detachment; 54.8% recovered completely, 22.4% obtained anatomic cures, and in 22.8% the operation was a failure. About the same number of multiple operations were performed on the various refractive groups, with a slight predominance in myopic eyes. The percentage of cures reached its maximum when the detachment was less than one month old and gradually decreased up to six months; then the percentage increased slightly, because such patients were operated on only if some chance of success was apparent. The percentage of complete cures varied only slightly up to the age of 60 years and fell abruptly after this age. The high percentage of failures observed in young patients was attributed to a severe associated trauma.

Detachment occurred earlier in patients with myopia than in those with emmetropia, and the stronger the myopia the earlier it occurred. Fewer cures were observed in patients with slight myopia and especially in those with emmetropia, which is not surprising, for most of the patients with severe trauma belong to this group. The degree of refractive error had little influence on the results of operation, but the extent of the detachment played a preponderant role in the success of the operation; the greater the detachment the fewer the cures. The predominance of the lesions in the superior temporal quadrant was apparent in patients with myopia of over 6 diopters and in hypermetropic eyes at a lesser degree.

On the whole there was no difference between mild or severe degrees of myopia as regards the distribution of tears. In classifying the tears according to their character (punched out, linear, or horseshoe-shaped) the distribution of tears was proportional in the different refractive groups, except for the relatively high percentage of punched-out tears in the myopic eye. The predominance of tears in the superior temporal quadrant in the myopic eye might be due to the action of the oblique muscles and might be favored by an insufficient irrigation by the temporal artery or by the degenerative changes of the deep membranes of the eye in myopic patients. There was, however, also a predominance of the same kind in hypermetropic patients. This appeared to be due to a vascular arrangement which is favorable to the nutritional disturbances of the retina. Peripheral detachment appeared to diminish the chances of success. Fewer cures were observed in detachments involving the macula. Bilateral detachments were cured in a high percentage of patients. Trauma diminished the percentage of cures. Hypotension existing before operation was an aggravating factor. Chorioretinitis did not seem to diminish the chances of success.

DENMARK

Penicillin-Resistant Staphylococci.—At a meeting of the Jydsk Medical Society (*Nordisk medicin*, July 31, 1958) one speaker reported experiments with 110 members of a hospital staff whose noses had been treated with an ointment containing an antibiotic intended to render them no longer carriers of penicillin-resistant staphylococci. In addition to the encouraging results of these experiments, there was the benefit accruing to systematic coaching of the staff in the prevention of hospital cross-infections. Here much could be done to correct the laxity of hospital hygiene prompted by the early successes of penicillin when resistant organisms were unknown. The responsibility of hospital authorities for the hospital infections of patients was discussed by another speaker who cited a test case, that of a 27-year-old diabetic woman. A few days after her admission she incurred an infection with type 80 staphylococcic. Multiple abscesses formed and caused the loss of one eye and osteomyelitis of both tibias. Her appeal to have her hospital charges refunded was rejected in principle on the ground that the hospital must in such a case first be convicted of negligence.

Asthma in Children.—In 1944, Dr. W. Flensborg undertook a follow-up study of 298 children who had been treated for asthma 5 to 18 years earlier. He found that 120 had been free from attacks of asthma for a year or longer, but among them were 8 who coughed, 5 who expectorated, and 53 who were short of breath. In spite of their freedom from actual attacks of asthma, many of these children had become susceptible to emphysema and chronic bronchitis. Five had died of status asthmaticus and 10 of some other cause. The further fate of the same asthmatics was investigated by Dr. E. Ryssing

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The items in these letters are contributed by regular correspondents in the various foreign countries.

(*Ugeskrift for læger,* Aug. 7, 1958), who between May and September, 1957, sent a questionnaire to 283 survivors, 272 of whom replied. Of the 120 who had been free from attacks in 1944, only 58 had remained so. Evidently the prognosis was best for those asthmatics whose disease had begun early in childhood, had been of short duration, and had disappeared at about the age of 15. The deaths from asthma had risen to nine, and there was also an additional death from chronic bronchitis. As only about 30% of all the children had become symptom-free on growing up, Ryssing urged closer supervision of such patients, with early examination and specific treatment.

Therapeutic Abortions.—In Denmark the physician who undertakes a therapeutic abortion must send the Department of Public Health a report on a form setting forth the method used for inducing abortion and any complication that occurs. An opportunity is thus afforded for comparing different methods. Berthelsen and Ostergaard (*Ugeskrift for læger,* July 31, 1958) analyzed the material thus provided in the five-year period 1953-1957. The 23,666 abortions in this period resulted in 16 deaths and 697 complications. The case fatality rate was 0.13% for the abdominal approach and 0.05% for the vaginal approach. The complication rate for six different methods ranged from 2 to 4.5%. The cremor saponis method, the most widely used since 1957, emerged with credit from this comparison, but the risks of therapeutic abortion were found to be of the same degree as those of delivery at full-term.

Greenland's Invalids.—In the fall of 1956 a survey of Greenland's invalids was made. Questionnaires were sent to all the district medical officers so that 80% of the population was covered. A report on this survey by Dr. P. V. Smith (*Ugeskrift for læger,* Aug. 14, 1958) indicated that much of the invalidism noted was preventable. The list of the five most important causes involving 60% of all the persons registered as invalids was led by poliomyelitis. As the whole of Greenland's population was vaccinated against this disease in 1955 and 1956, the invalidism it inflects should be much reduced in the future. Second on the list were the mental defects. Next came the congenital malformations. If many of those with chronic heart disease had not been classed by themselves, but considered with the others with congenital malformations, this category would have been in first place. Fourth on the list was tuberculosis of the bones and joints. Only a fourth of such persons could, however, claim over 50% disability. Invalidism due to pulmonary tuberculosis was classed by itself. Fifth on the list were those with defective vision, 63% of whom were totally blind. Much of the defective vision was an old age phenomenon due to such diseases as glaucoma and cataract, the incidence of which can be reduced by the application of modern methods of prophylaxis and treatment. With tuberculosis on the wane and the outlook for defective hearing much improved by advances in this field, Smith foresees a substantial reduction in Greenland's invalidism.

INDIA

Regeneration of Hemoglobin and Plasma Proteins.—S. V. Phansalkar and co-workers (*Indian Journal of Medical Research,* vol. 46, March, 1958) observed in previous experiments with vegetable proteins that supplementation of cereals with pulses and leafy vegetables improved the biological value and egg replacement value of the mixed protein in adult human beings. To compare the capacity of these mixed vegetable proteins with that of skimmed milk in their capacity to regenerate hemoglobin and plasma proteins in protein-depleted animals, they observed the changes in adult albino rats in hemoglobin and plasma protein concentration in the process of protein depletion followed by repletion. Blood and plasma volume estimations were also made along with determination of hemoglobin and total plasma protein concentration. The animals were first fed a protein-free diet, otherwise complete in minerals and vitamins. Blood volume, packed cell volume, and hemoglobin and plasma protein concentrations were estimated before the animals were placed on a protein-free diet and 4, 8, and 10 weeks after they had been fed such a diet.

The body weights decreased progressively till the 8th week, after which further fall till the 10th week was insignificant. Blood and plasma volume however changed little till after the first four weeks. The hemoglobin level showed a slight decrease in four weeks, real depletion in total circulating hemoglobin and plasma proteins becoming evident at the end of eight weeks. Protein-depleted rats were divided into three groups and kept on diets containing the following as sources of protein respectively: skim milk for the first group; a mixture of wheat, red gram, and amaranth for the second; and a mixture of bajra, red gram, and amaranth for the third. The intake of total proteins in the different groups and of calories was identical. Such diets were started after eight weeks of depletion. Blood volume, packed cell volume, and hemoglobin and plasma protein concentrations were determined in all the groups 3, 7, and 10 days after commencement of repletion and also after 14 and 21 days.

The changes in the different values occurred in an order which was exactly the reverse of that seen during depletion. Thus, blood and plasma volumes showed a significant increase within three days of repletion, while subsequently the increase was comparatively small. Body weight showed a steady rise throughout the period. On all the three diets the rats could double the quantity of total circulating hemoglobin, thus showing the efficiency of mixed vegetable protein in its regeneration. The average plasma protein concentrations in all three groups showed a rise, the rate of regeneration, however, being most rapid in the group given skim milk and slowest in those given bajra (third group); this was also true of the hemoglobin. There were no differences in the rates of gain in weight on the three diets. The regenerated hemoglobin formed 76 to 86% of the newly formed total circulating blood proteins, the rest being plasma proteins. Thus, although the vegetable protein mixtures promoted regeneration of hemoglobin and plasma proteins at slightly slower rates than skim milk, they did not lack the capacity to regenerate them. Cereal-pulse-leafy vegetable diets can therefore be used in the treatment and prevention of protein malnutrition.

Electrocardiogram of Infants.—Bharucha and Datey (*Indian Journal of Child Health*, vol. 7, July, 1958) studied the electrocardiographic pattern of 44 normal infants on the first day of life and found that the criteria for diagnosing right and left ventricular hypertrophy are not yet evident as they are in adults. Besides the standard extremity leads, they took augmented unipolar extremity leads and unipolar precordial leads. The average heart rate was 130 per minute (range 100 to 162). All infants showed sinus rhythm, but seven had episodes of sinus arrhythmia with a heart rate below 115 per minute. The average P-R interval was 0.11 second. The average P-wave axis in the frontal plane was 55 degrees. The mean QRS axis in the frontal plane was 130 degrees, and the average T-wave axis was 42 degrees. Either positive or diphasic T waves were seen in the right precordial leads of 37 infants, and in the left precordial leads the T wave was positive in 12, diphasic in 9, flat in 9, and negative in 4. The T waves in right precordial leads were negative in two and flat in five. Thus, right ventricular preponderance was manifest in every tracing studied in this series. These changes should not be confused with the findings of right heart strain due to congenital cardiac malformations.

Narcotics Department.—The report of the Opium Department, now renamed the Narcotics Department, for the year ending September, 1956, revealed that over 500,000 lb. of opium were exported, mostly to the United Kingdom and the United States. The former imported about 293,000 lb. and the latter 200,000 lb. Other buyers were France, Italy, Japan, and Germany. The number of licensed cultivators of poppies is decreasing. A few cases of illicit cultivation still occur. In the suppression of illicit trafficking in narcotics, the Narcotics Intelligence Bureau, established by the government under articles 11 and 12 of the Geneva Convention of 1936, maintains liaison with the customs, police, and excise authorities in India and abroad. The opium is processed in the government opium and alkaloid works and is alone used for medicinal purposes, the demand for which has been increasing at home and abroad.

Portal Venography in Children.—F. A. Nazareth (*Indian Journal of Child Health*, vol. 7, July, 1958) performed percutaneous splenoportal venography on 25 children under light general anesthesia. All of them had palpable spleens of varying sizes. If ascites was present the abdomen was tapped early in the morning of the day of the investigation. Eleven patients had hepatic cirrhosis, five had noncirrhotic hepatosplenomegaly, three had congestive splenomegaly, and one each had thalassemia, nutritional anemia, a displaced spleen, tuberculous peritonitis, rickets, and infectious hepatitis. In normal splenograms, the contrast medium injected into the spleen passed into hilar veins which joined to form the splenic vein. The splenic vein was seen coursing towards the liver, meeting the superior mesenteric vein to form the portal vein. From here the dye entered both sides of the liver. No collateral veins were seen. This appearance was seen in 10 patients, including the 5 with noncirrhotic hepatosplenomegaly, 2 of those with anemia, and 1 each with rickets, tuberculous peritonitis, and a displaced spleen. The size of the splenic and portal veins was normal in these patients. The rest showed three different patterns. The pattern of intrahepatic obstruction was seen in five of those with hepatic cirrhosis whose splenic and portal veins were larger than normal and who showed pooling of the dye in the liver. Collateral circulation was seen in all patients, but the inferior mesenteric vein and the inferior vena cava were not visualized. These children had a marked splenomegaly and their ages varied between 3½ and 11 years. The liver was palpable and firm and liver function tests and liver biopsy indicated cirrhosis.

The second group showed the pattern of infrahepatic obstruction. Seven patients were in this group, four of whom had cirrhosis. The other three had congestive splenomegaly. In those with cirrhosis, the dye stopped abruptly in some part of the splenic vein and the portal vein was not visualized. Collateral veins were prominently seen. These patients were aged 15 months to 12 years and had enlarged firm livers, palpable spleens, and ascites; jaundice was present in two. In patients with congestive splenomegaly, there was associated evidence of portal hypertension. No dye was seen to enter the liver, and the collateral veins were plainly visible. The splenogram was consistent with a diagnosis of cavernous malformation of the portal vein. These patients were 9 to 13 years of age, gave a history of repeated hematemesis, and had marked splenomegaly with a barely palpable liver; esophageal varices could be demonstrated radiologically in two. The third group was characterized by suprahepatic obstruction and was seen in two patients with hepatic cirrhosis and one with infectious hepatitis. The hepatic radicles of the portal vein were well seen without any distortion or pooling of the dye, and numerous collateral veins were present. One patient in this series died 30 minutes after the splenography. Extravasation of the dye into the peritoneal cavity occurred in some without any untoward effects, but others complained of transient tenderness over the spleen.

Occupational Therapy.—An occupational therapy center and workshop, the second of its kind in Asia, was inaugurated in Nagpur in July. The first is at the K. E. M. Hospital, Bombay. The new center is located in the radiology department of the Nagpur Medical College Hospital and will offer a two-year course. Twenty students will be trained in occupational therapy. A grant of about $4,200 was earmarked for the new department by the government and, in addition, $2,100 was donated by the president of the All-India Occupational Therapists Association.

NORWAY

Radioactive Fall-out.—Last spring the Norwegian State Council for Radio-Hygiene Problems was approached by the Norwegian Public Health Service, with a request for information about means of protecting the population from radioactive fall-out. The answer to this request, dated July 1, 1958, is briefly as follows: Measurements have been taken of the radioactive fall-out in Norway in 1957 and of the strontium-90 content of the bones of human beings and domestic animals. Until a full report is available, it may be said that the radioactive fall-out in 1957 did not exceed 25 to 33% of the upper limit permissible anywhere in Norway. Though the situation is serious, the available information about it is not such as to warrant taking active measures to cope with it. Apart from the radioactive fall-out, measures are already being taken to reduce the harm likely to result from other sources of radiation. As for the fall-out itself, it may already be assumed that recent nuclear explosions have increased the radioactivity of air, water, and certain articles of food to a progressively alarming degree.

Hepatitis from Blood Transfusion.—Dr. H. Heistö (*Tidsskrift for den norske laegeforening,* July 1, 1958) sent a questionnaire to 7,755 patients discharged from the surgical service of Ullevaal Hospital in 1955, asking if they had suffered from jaundice since their discharge. Of the 6,043 who answered, 977 had had blood transfusions in the hospital. Among the same 6,043 were 609 who had been jaundiced. In many of these patients the jaundice was associated with disease of the bile ducts, hepatic cirrhosis, hemolytic anemia, and other conditions not attributable to the transfusion. Only three were believed to have been caused by the blood transfusion. The incidence of hepatitis was significantly higher among the recipients of blood transfusion than among the rest and was also higher than the incidence of hepatitis of the whole of Oslo in 1955. Of the 5,066 patients not receiving a blood transfusion while in hospital, none developed hepatitis during the period under review. Thus Heistö found the risk of hepatitis small in comparison with the benefits of transfusion, but he endorsed the policy which forbids the use of donors with a history of hepatitis. He noted, however, that while one of the two transfusion centers used makes a rule of disqualifying as donors every exhepatitis patient however far back his hepatitis may date, the other center accepts donors whose attack of hepatitis dates back two years or more.

Falling Appendicitis Death Rate.—The steady decline of the appendicitis death rate in the last 20 to 30 years was graphically demonstrated in the *Journal of the Oslo City Hospitals* (vol. 8, 1958) by Dr. H. F. Harbitz who showed that prior to 1940 it was between 2 and 5%, whereas after this year it was under 1%. It has been much higher in males than in females. In his own hospital 2,696 patients were treated for appendicitis in the 10-year period 1948 to 1957. Of these 2,432 were operated on and 8 died. Of the 264 not operated on 10 died. This gives a crude case fatality rate of only 0.68%. Of the 18 deaths, 6 were traceable to incorrect diagnoses; 6 were due to peritonitis in spite of antibiotics; 3 to pulmonary embolism; and 3 to the disease being too far advanced on admission to respond to treatment. Harbitz recommended large doses of penicillin for these patients.

Perphenazine in Psychiatry.—Perphenazine was introduced in the hope that, while possessing some of the therapeutic effects of chlorpromazine and reserpine, it would not provoke their undesirable side-effects. Lingjaerde and Schjöth (*Tidsskrift for den norske laegeforening* 78:278, 1958) gave this drug to 77 mental patients, mostly schizophrenic, whose response to other forms of treatment had been disappointing. Under placebo control the drug emerged from the test with a reassuring verdict, having in many cases proved helpful after other ataraxics had failed. By varying the ataraxic given it was found that some patients responded better to perphenazine than to chlorpromazine and vice versa, but on the whole perphenazine surpassed the other drugs by exerting a more stimulating effect on apathetic patients. About 33% of them showed some side-effect and this led to the drug being withdrawn in some cases. None of the side-effects such as drowsiness, tremor, nausea, or paralysis agitans could, however, be described as serious. The daily dosage was 24 to 48 mg. The authors concluded that with later tests using a larger dose, perphenazine can often be relied on to secure better results than reserpine or chlorpromazine.

Stousland (*Farmakoterapi*, vol. 2, 1958) reached similar conclusions. Using placebo control in a series of 38 mental patients, he gave perphenazine for four weeks or more. The dosage began with 8 to 12 mg. daily, increasing at intervals of three to five days to a maximum of 56 to 64 mg. daily, the usual maximum dose being 24 to 32 mg., and the usual maintenance dose 8 to 16 mg. daily. In addition to schizophrenics, some of the patients suffered from manic-depressive psychosis. Side-effects were rare. Stousland concluded tentatively that perphenazine is well suited for the treatment of psychoses when anxiety and agitation with hallucinations and delusions are prominent symptoms.

Thrombendarterectomy for Obliterative Arteriosclerosis.—In recent years patients with obliterative arteriosclerosis at the Ullevaal hospital have been treated by thrombendarterectomy and anticoagulants. Dr. F. Bergan (*Journal of the Oslo City Hospitals*, vol. 8, 1958) stated that since 1955 the aorta, the common iliac, or the external iliac was operated on in 18 cases, and the femoral or popliteal in 58. The results in 11 of the first 18 were successful, with a peripheral pulse in the foot and without claudication. Good results could also be claimed after 24 of the 58 endarterectomies performed on the femoral or popliteal arteries with no operative death. Advanced age was no contraindication, and some of the patients were over 80. Bergan emphasized the importance of anticoagulants which have rendered operative treatment feasible.

Better Anesthesia.—One of the outstanding features of the help the Scandinavian countries give each other in medical matters is the free way in which the excellency of one of them in a particular field is used as a stick with which to beat another country. In an editorial in *Tidsskrift for den norske lægeforening* for Aug. 1, Norway and Denmark, with about equal populations, are compared with regard to the anesthesia available. With the aid of the World Health Organization and the University of Copenhagen, an anesthesiology center was established in Denmark in 1950 with the task of training anesthetists in the theory and practice of their speciality. Since then this center has become a mecca to which aspiring specialists have come. Norway alone has sent eight such aspirants for the center's one-year course. Denmark is now so appreciative of the expert anesthetist that 34 hospitals have one as a full-time member of the staff, with the rank and emoluments of a senior medical officer. In Norway there are as yet only eight such hospitals, and it has been necessary to fill some of the anesthetist appontments with applicants from abroad. The chief reason for this shortage is that the physician contemplating anesthesia as a speciality would like to be reasonably sure of a senior hospital appointment.

Relapse of Tuberculosis.—Dr. S. Böyum (*Acta tuberculosea scandinavica,* vol 31, no. 1, 1958) studied relapses of tuberculosis in the period from January, 1946, to December, 1955. During these 10 years the relapse rate rose and the death rate fell, the latter to such an extent that it was 50% lower in the last five years than in the first. Among open cases there was a shift upwards of the patients' ages to such an extent that, up to 1951, only 17% of the patients were under 40, whereas after 1951 the corresponding figure was 28%. The falling death rate and the rising average age of the patients reflected the growing duration of the disease. The relapse rate was higher for men than women, being in the ratio of 60:40 in the open cases. Relapses were most numerous between the ages of 30 and 39. No correlation of the relapse rate with the patients' ages could be established. Most of the relapses occurred on return to work and within five years of the treatment given. The relapse rate was smaller after thoracoplasty than after less radical measures such as artificial pneumothorax and conservative treatment. This study contributed little information on the relapse rate after modern chemotherapy, as it was given on an extensive scale only in the latter part of the period under review.

UNITED KINGDOM

Anemia in Pregnancy.—In a group of 1,071 women seen initially in the first 11 weeks of pregnancy, Kerr and Davidson (*Lancet*, vol. 2, p. 483, 1958) found a hemoglobin level below 10.4 Gm. per 100 ml. in 2% and below 12.6 Gm. per 100 ml. in 32%. No correlation was found between the incidence of anemia and age, parity, or the number of pregnancies within the last five years. An investigation of the efficacy of various iron preparations was carried out in 430 of these women, whose hemoglobin level was 10.4 Gm. per 100 ml. or above; 20% received ferrous sulfate, 20% received ferrous gluconate, 20% received ferrous gluconate plus ascorbic acid, and 40% formed a control group and received pills containing only lactose. Treatment was started between the 24th and 25th week of pregnancy, and the results were reviewed at the 37th week. For this follow-up, 410 of the women were available.

Hemoglobin levels and packed-cell volume rose in each of the iron-treated groups and fell in the control group, but no significant difference was observed between the changes in hemoglobin level, erythrocyte count, and packed-cell volume in the two groups treated with ferrous gluconate, with and without ascorbic acid. It was therefore concluded that the addition of ascorbic acid does not affect the therapeutic value of ferrous gluconate, either beneficially or adversely. The two ferrous gluconate-treated groups were therefore treated as one for purposes of comparison with the group treated with ferrous sulfate. This comparison showed that the rise in hemoglobin level, erythrocyte count, and packed-cell volume in the ferrous sulfate-treated group was less than in the groups receiving ferrous gluconate, the difference being significant for the erythrocyte count, barely significant for the hemoglobin level, and not significant for the packed-cell volume. There was no significant difference between the control pills and the iron pills or between the three iron preparations, so far as gastrointestinal tolerance was concerned. Thus, most of the symptoms attributed by the patients to iron medication were either incidental or psychogenic in origin.

Intolerance to Iron.—Further evidence that a large proportion of the symptoms experienced in patients taking iron preparations by mouth is psychological in origin was adduced by Kerr and Davidson (*Lancet*, vol. 2, p. 489, 1958) from the results of a double-blind trial in which 93 healthy young women were each given six packets of pills and asked to take them in the prescribed dosage during six successive weeks. Four of the packets contained, respectively, ferrous sulfate, ferrous gluconate, ferrous succinate, and ferrous calcium citrate. The fifth packet, given to the volunteers as an iron preparation, contained only lactose. The sixth packet contained lactose pills identical in appearance and composition, but marked "control pills," and it was explained that these were given to make sure that the coating used on the other pills was not itself a cause of symptoms. The results showed that there was no significant difference between the incidence of toxic effects in the four iron groups and those receiving the unknown control. On the other hand, the incidence of significant symptoms with the known control was only two. With each preparation, constipation and abdominal discomfort were the commonest symptoms; the incidence of all the others was less than 10%. As no one reported symptoms with all four iron preparations, this is taken as evidence of there being no true iron intolerance embracing all forms of iron.

Glandular Toxoplasmosis.—A series of 30 patients with acquired toxoplasmosis resembling glandular fever was reported by Beverley and Beattie (*Lancet*, vol. 2, p. 379, 1958). The parasite was isolated in four patients, and the others had dye-test antibody titers of 1:320 to 1:50,000 and complement-fixing titers of 1:5 to 1:80. All had negative Paul-Bunnell reactions. Ten of the patients were under the age of 10, 11 were aged 11 to 20, 4 were 20 to 30, and 5 were over 30. The illness varied greatly in severity and duration. Six of the patients were never really ill. The shortest duration was a week and the longest 44 weeks. In 20 patients, the first thing noticed was swelling or pain in the lymph nodes, usually in the neck. In five, so little account was taken of this that two to eight weeks passed before a physician was consulted.

Association with animals was present in several cases. One patient had contact with seven guard dogs, three of which had dye-test titers of over 1:160, but no illness had been noted in the dogs. One patient was a veterinary student who had examined toxoplasma-infected dogs post mortem. One was a carter, but no toxoplasma antibodies were found in the horses he had handled. Twelve had contact, in some cases close, with cats, and five had contact with budgerigars. In 12 cases, members of the patient's family were also examined for antibodies. The relatives of eight of these had either no antibodies or low-titer antibodies believed to be the legacy of subclinical infection years before. The relatives of the remaining four appeared to have been infected about the same time as the patient.

Long-term Anticoagulant Therapy.—The effect of long-term anticoagulant therapy in patients with coronary thrombosis was studied by Toohey (*Brit. M. J.* 2:473, 1958). Since 1955 all patients discharged from hospital after a severe attack of coronary thrombosis, or with a history of recurrent episodes of myocardial infarction, were kept on continuous anticoagulant treatment. Patients who had only a moderately severe attack of thrombosis, or who had only a single episode of infarction, were not treated. During the period under review 117 patients were given treatment. For purposes of comparison all patients with coronary thrombosis discharged from hospital between 1948 and 1955 were followed up. To obviate the possibility of bias, all those with proved coronary thrombosis discharged from other hospitals in the same area between 1953 and 1955 were followed up. The case fatality rate for the treated severe cases was 1.7%, 3.0%, and 11.6% at 6, 12, and 18 months, compared with 11.3%, 18.3%, and 24.3% for the control series from the same hospital. In other hospitals in the same area the corresponding rates were 2.6%, 6.4%, and 13.2%. These figures indicate that long-term anticoagulant therapy reduces the expected case fatality rate at all periods up to 18 months. Several of the severely ill patients on continuous anticoagulant therapy for many years died from progessive heart failure, so that while long-term anticoagulant therapy significantly prolongs life, something more is needed to halt the underlying atherosclerosis.

Long-term anticoagulant therapy is a feasible procedure and most patients can be adequately controlled if blood tests are taken not more frequently than every 8 to 12 weeks. The minimum period required for routine blood tests in the few patients who prove difficult to control is four to five weeks. Toohey does not advise a blood-mailing service. Full written instructions about all aspects of the treatment are given to the patient and his physician, particularly with regard to the risk of bleeding, frequent blood tests during intercurrent illness, and the danger of taking such drugs as aspirin, phenylbutazone, and broad-spectrum antibiotics.

Sudden Death in Infancy.—Sudden deaths in children aged two weeks to two years which might have been attributed to suffocation include more than 20% of the mortality in this age group, according to a report presented to the Ministry of Health by a committee under the chairmanship of A. Leslie Banks (*Monthly Bulletin of the Ministry of Health*, vol. 17, p. 182, 1958). The report was based on the findings in 81 sudden deaths in infancy which occurred in London and Cambridge. The histological classification of the 64 from London showed the cause of death to be tracheobronchitis, possibly of viral origin, with typically explosive desquamation in 61.5%; tracheobronchitis, possibly of viral origin, without epithelial desquamation, but with pronounced mononuclear infiltration in 11.5%; and purulent bronchitis, bronchiolitis, and bronchopneumonia in 21.2%. In most cases the standard of care for the child was good, and no evidence of overlaying could be found. Only 11 of the infants had been seen by a physician in the last three days before death. In most of these the symptoms were trivial. The sort of symptoms that were often present just before death were a slight cold, with or without vomiting. Most of these patients were put to bed as usual and a few hours later were found dead or dying. The investigation so far has not revealed a definite cause for these sudden deaths.

Genitourinary Tuberculosis.—In an analysis of a five-year follow-up of 132 patients with genitourinary tuberculosis, Band and Murray (*Practitioner*, vol. 181, p. 279, 1958) recorded a case fatality rate of 3.8%. The proportion unfit to return to work was 13.6%, and 82.6% were able to return to work within a reasonable interval after their discharge from hospital. The comparable figures for a small series (41 patients) followed up between 1935 and 1940 were a late case fatality rate of 24.5% and 39% permanently unfit for work. The routine chemotherapy used was 10 to 15 Gm. of PAS, with 200 to 300 mg. of isoniazid daily, given during hospitalization and for 18 to 24 months thereafter. Streptomycin was reserved for operation cover or for patients who did not respond to PAS and isoniazid or who, for some reason, could not tolerate one of these drugs. Most patients were given complete bed rest for three to six months and remained in hospital for three to nine months. In recent years the tendency has been to perform a total nephroureterectomy for widespread unilateral renal tuberculosis when the ureter is involved or a stricture has occurred. It was performed in 45 patients in this series. Ureterocolic anastomosis was preferred to ileocystoplasty in patients with persistent tuberculous ulceration of the bladder when the remaining kidney was threatened from backward pressure.

Only 14 patients had bilateral renal tuberculosis, but they were all young. All achieved conversion of the urine in six months, and over half of them were able to return to some form of work. The more seriously diseased kidney was removed in seven cases. With the general scheme of treatment prescribed (admission to hospital, bed rest, chemotherapy, and operation when necessary) it was found that the conversion period for most patients, when the culture for tubercle bacilli became negative, was within three months of admission to hospital. Most patients were in hospital 11 weeks before operation and subsequently for about 20 weeks. Most patients returned to work within three months of discharge.

Extension of Poliomyelitis Vaccination.—The program of vaccination against poliomyelitis will be extended in three ways: 1. The upper age-limit is to be raised from 15 to 25. 2. Children and expectant mothers who have received two injections are to be given a booster dose. 3. Inoculation is to be offered to domestic staff in hospitals as well as to physicians and nurses. The cost of the expansion is likely to exceed $11,200,000. The bulk of the vaccine to be used is the Salk type imported from Canada and the United States. It costs about 56 cents an injection. The ministry estimates that raising the age limit to 25 years will bring in 6,250,000 more people, necessitating 12,500,000 injections. Hospital staff now eligible will number about 500,000. Introduction of the third booster dose will add another 6,500,000 injections to the program.

Surgical Wound Infection.—J. B. Kinmouth and coworkers (*Brit. M. J.*, Aug. 16, 1958) studied the ventilation of the operating rooms in St. Thomas's Hospital, London, and found that the bacterial content of the air declined after the introduction of a cross-draft of fresh filtered air over the operating table. This reduction in bacterial content occurred in a room in which a plenum positive-pressure ventilation system was already in operation. No corresponding reduction occurred in the rate of postoperative wound sepsis in patients operated on in this room. They concluded that the presence of wound infections can be attributed to several possible causes. One is the acquisition of hospital staphylococci by patients in the wards before operation. The organisms were found in the nose, on the bedclothes, or on the skin. Reduction of the bacterial content of the air in operating rooms is desirable as a general principle but is unlikely by itself to eliminate infection. A simple and practical test to detect the more dangerous carriers of organisms in hospitals is needed.

Report on Irradiation.—The Medical Research Council reviewed the United Nations' radiation report and found that, in general, it agreed with that of Great Britain and of the United States, both of which were published in June, 1956. In the two years since the council's report, much more information has been collected, but this has led to no major reversals of opinion. The council's report agrees that for every small additional exposure to radiation there is a small but proportional increment in the frequency of mutations in the germ cells. These will manifest themselves as genetic changes in future generations; but scientific opinion is still divided as to whether there is a threshold for radiation effects on ordinary body cells. The council stated that it is not possible to say "yes" or "no" on this point and the scientific attitude to it should be one of suspended judgment. The council took exception to the United Nations' statement that "malformations have been observed following exposure of pregnant women to accidental and therapeutic irradiation and to diagnostic procedures." No evidence has been produced that the doses of radiation used in diagnostic procedures have produced congenital malformations in the child.

Citrate Intoxication.—Ludbrook and Wynn (*Brit. M. J.* Aug. 30, 1958) found high plasma citrate levels during the infusion of citrated blood into four patients undergoing operation under hypothermia. One patient died with signs attributable to citrate intoxication. A direct relationship between the rate of infusion of citrate and the rise in plasma citrate level was demonstrated in normal human and canine subjects. For each milligram of citrate infused per kilogram per minute, the rise was about 20 mg. per 100 ml. in dogs and about 12.5 mg. per 100 ml. in human beings. By using a constant infusion technique it was shown that in dogs 40% and in man 20% of the infused citrate was excreted in the urine, and the remainder was metabolically destroyed. In both dog and man hypothermia of 28 to 29 C was shown to reduce the rate of metabolic destruction of citrate by 30 to 40%. The infusion of citrated blood at less than about 1 pt. (450 ml.) in five minutes in an adult is unlikely to cause a dangerous rise of plasma citrate, provided that the rate of citrate metabolism is not reduced.

H-Bomb Exposure and Leukemia.—A naval officer who served on Christmas Island during the nuclear test explosion there last November died of leukemia and aplastic anemia. He is the second member of the British forces who was at the Christmas Island test to die from leukemia. The disease can be caused by atomic radiation but the admiralty stated officially that from the information available there are no grounds for considering that the fact that this officer was serving on Christmas Island last year had any bearing on the cause of the illness from which he died. Also, a jury at Swansea returned a verdict of death from natural causes on the soldier who died of acute lymphocytic leukemia. A pathologist said there was no connection between his death in June and the fact that he served in the same Christmas Island test. When the pathologist was asked if he could be absolutely certain that the man's death was not related to fall-out from the explosion, he replied: "That would be to claim infallibility." The soldier was at what scientists described as a safe distance from the explosion on the island and had not been detailed to go into areas where radioactive material was kept.

Death from Hypotensive Drug.—Pentolinium tartrate, a ganglionic blocking drug, was prescribed by the resident for a 64-year-old patient, hospitalized for treatment of his hypertension. The instruction "40 mg. three times a day" was written on the treatment card, but the method of administration was not stated. The two senior ward nurses were off duty, and the remaining nurse had had no experience with pentolinium. Finding no tablets of the drug, but only a solution of it, she injected 40 mg. intramuscularly. Five minutes later the patient complained of abdominal discomfort and dizziness and his blood pressure could not be recorded. Although therapy with levarterenol raised it for a short time, he died six hours later. Autopsy showed the presence of a recent blood clot two inches from the origin of the anterior branch of the left coronary artery. The pathologist gave the cause of death as coronary thrombosis following the administration of a hypotensive drug. The coroner stated that the physician in charge should have left specific directions for the administration of the drug.

Experiments on Animals.—All experiments on living animals must be recorded and licensed by the Home Office. According to its annual report, nearly 3 million such experiments were performed in Britain last year by 4,115 licensed persons. Those holding licenses numbered 5,762. About 87% of the experiments did not require an anesthetic and were mainly inoculations or involved changes in the animals' diet or the administration of external application of a drug. Over one million experiments were done in connection with preparing, standardizing, or testing serums, vaccines, or drugs, as required by law. Most of the tests were made on rodents; only 13,750 experiments were made on cats, dogs, and larger animals. During the year inspectors paid 1,653 visits to registered laboratories, usually without previous notice, and found that in general the laws relating to animal experimentation were being obeyed. There were only five cases of irregularities, but in none of these was there any deliberate infringement of the law. They were due to carelessness or inadequate supervision.

Toxoplasmosis.—Toxoplasmosis, which has always been considered a rare disease in Britain, may, in its subclinical form, be more common than is generally supposed. Beverley and Beatty estimated that about 7% of cases clinically diagnosed as glandular fever with a negative Paul-Bunnell reaction, were in reality due to Toxoplasma infection of the lymph glands (*Lancet* 2:379, 1958). They reported 30 cases of acquired toxoplasmosis resembling glandular fever. In four of these the parasite was isolated, and the others were proved by means of the cytoplasm-modifying dye test at titers of 1:320 to 1:50,000 and by the complement-fixation test at titers of 1:5 to 1:80. The Paul-Bunnell test was negative in all cases. It is difficult to know what titer should be taken to signify active infection. The authors suggested that titers found in clinical toxoplasmosis might be accepted or titers above those found in normal subjects. Ten of the patients were under the age of 10; 11 were from age 11 to 20; 4 were from 21 to 30; and 5 were over 30. Lymphocytosis was found in 15 patients, and cells of the glandular fever type were reported in 5. The severity and duration of illness varied greatly. Five of the patients were never really ill, whereas in the others the illness was prolonged for weeks or even months. In one it lasted 11 months. Fatigue was a prominent symptom in these patients. A particular danger is the development of toxoplasmosis during pregnancy, because the infection may be passed on to the fetus while the mother's infection may be unnoticed or undiagnosed. Human toxoplasma infection may come from a variety of birds and mammals, and the disease may be transmitted from person to person. Since the commonest manifestation of acquired toxoplasmosis so far recognized is lymphadenopathy, which usually begins in the neck, it is suggested that infection takes place through the mucosa of the tonsillopharyngeal region.

Pharmacists' Remuneration.—The Committee of Public Accounts in its annual report stated that it was disturbed by the excessive profits of pharmacists on prescriptions under the National Health Service. A pilot inquiry showed that these excess profits have continued since 1954, when the Treasury first drew attention to the matter. Pharmacists receive for each prescription a dispensing fee, the cost of ingredients plus 25%, and certain other allowances. In addition many pharmacists obtain substantial discounts from list prices, the benefits of which are not passed on. Results of inquiries suggest that they may make a concealed profit of nearly 20% beyond that agreed on with the Ministry of Health.

Hospital's Spending Criticized.—The Committee of Public Accounts is severely critical in its annual report of the board of governors, the University of Oxford, and the Ministry of Health for their handling of the scheme for the extension and modernization of the Radcliffe Infirmary, Oxford. In 1955 the ministry obtained treasury approval to spend $1,116,292 on the project. By 1956 the treasury was told that the estimated cost had risen to $2,282,000 and that the hospital's board of governors had proceeded with much of the work without the ministry's sanction. The treasury consented to the proposed expenditure and gave the ministry authority to proceed with work already begun, but a directive was issued that any further expenditure could not be incurred without the consent of the Minister of Health. In spite of this, the board of governors of the infirmary placed contracts not covered by ministerial authority, and now the total expenditure is likely to be more than 2,800,000 dollars. The Ministry of Health stated that, even so, the hospital would cost no more than if it had been planned in the orthodox way, but the Committee of Public Accounts believed otherwise and considered that substantial economies could have been made if the whole project had been properly planned in advance. It considered the Ministry of Health's supervision of its agents, the hospital board, to be inadequate and recommended that the ministry's arrangements for the financial control of large hospital building projects be revised.

Refsum's Syndrome.—Three cases in the same family of a rare familial syndrome, first described in Norway by Refsum, were reported by Ashenhurst and co-workers (*Brit. M. J.* 2:415, 1958). Only one case has been reported in Britain before. Refsum's syndrome is characterized by atypical retinitis pigmentosa, chronic polyneuritis-like symptoms, cerebellar disturbances, and other neurological abnormalities. Pigmentary changes are usually absent or insignificant in the retinitis, which is associated with night blindness and concentric limitation of the visual fields. The polyneuritis-like symptoms progress to distal paresis of the limbs, and the cerebellar manifestations include ataxia and nystagmus. Other neurological abnormalities sometimes but not constantly found are neurogenic deafness, anosmia, abnormalities of the pupillary reactions, and a high protein (globulin) level in the spinal fluid. Other findings are ichthyotic skin changes and abnormalities in the electrocardiogram, such as an increase in the P-R interval, nodal and auricular extrasystoles, alterations in the QRS complex, and sinus tachycardia. Consanguinity is present in nearly all cases.

Owing to the rarity of the condition, few autopsies have been done. The main abnormalities observed are fibrous thickening and infiltration of the leptomeninges by lipid macrophages and fatty degeneration of peripheral nerves, with axonal degeneration of the fiber tracts from the pontobulbar region to the cerebral white matter. In the authors' first patient the condition was provisionally diagnosed as a case of Friedreich's ataxia. The ocular signs, progressive limb paresis, and abnormal spinal fluid prompted further investigation, and Refsum's syndrome was diagnosed. Examination of two siblings revealed that they too had the syndrome. One, a woman of 23, who complained mainly of loss of power and shooting pains in the limbs, suddenly died while under investigation. The other, who suffered no disability, had lesions referred mainly to the skin, eyes, and peripheral nerves.

Cancer in Africa.—It is generally thought that cancer is rare in Africans and that the types and sites of cancer vary widely in their frequency from those seen in Europe or America. In 1951 the Faculty of Medicine of Makerere College set up a Cancer Research Committee to study the incidence and types of cancer in Uganda. A preliminary report was made by Davies and co-workers (*Brit. M. J.* 2:439, 1958). As might be expected, difficulties were encountered owing to the limitations of language and education of most of the population. Patients in Uganda do not always know their age, and their follow-up is difficult owing to migration from one area to another. There is also some reluctance, particularly in the elderly, to attend the hospital for advice. Preliminary analysis revealed that cancer is as common in Uganda as in European countries. In fact, the incidence of all malignant tumors in the Kyadondo region is of the same order as it is in Denmark. The chief exception was that women over 45 years of age in Kyadondo have half the cancer incidence of Danish women 45 to 54 years of age. The corresponding rates for men are very similar. There is an excess of hepatic cancer in Uganda, but only in men. Malignant disease of the lymphatic system is twice as common in African men as in the European, but not in African women. Gastrointestinal cancer, on the other hand, is only half as frequent in both sexes in Africa as it is in Denmark. Nephroblastoma (Wilms' tumor) and cancer of the penis are more common in the African. Cancer of the sexual organs is less common in African than in European women.

Antibiotic Hazards.—Disasters with antibiotics continue to be reported. A verdict of death by misadventure was recorded in Newcastle on a patient who died after an intrathecal injection of penicillin, given for meningitis. The doctor checked the content of the syringe before giving the injection by questioning the nursing staff, but confusion arose over the meaning of "mega unit," with the result that the patient received a dose 500 times that intended. An hour after the injection the patient started to have convulsions, and although measures were taken to dilute the spinal fluid concentration, he died. The coroner found that death was due to acute meningitis aggravated by the penicillin injection. At another inquest a patient was found to have died from aplastic anemia caused by streptomycin. A woman with pulmonary tuberculosis was hospitalized for two months and given streptomycin, para-aminosalicylic acid, and isoniazid. She left against medical advice but was readmitted two months later, when treatment with streptomycin and isoniazid was resumed. Within a month symptoms of aplastic anemia appeared, and she died 10 days later. Although rare, this can be caused by streptomycin.

WORLD HEALTH ORGANIZATION

Aging Population.—The WHO advisory group on the public health aspects of aging populations agreed that adequate provisions will have to be made for the tremendous increase, proportional and absolute, in the number of old people in the community. Because in many European countries fewer babies are being born, the proportion of old people in the population is increasing. Through improved social conditions and medical care, more people are living longer, but it is not sufficient to save life—life for those saved must be worth living. Although the population of 574 million people living in Europe and the U. S. S. R. in 1950 is expected to increase to 947 million by the year 2000, most countries have so far made no coordinated efforts toward solving the medical, social, and economic problems arising from the steady increase in the number of the aged. The following recommendations were made. It should be determined whether retirement has an adverse effect on health. Standards for physical and mental fitness related to various occupations for the elderly must be formulated. The nutritional needs of the elderly must be established. Health education related to old age problems and the collection of statistics concerning diseases among the elderly must be improved. Occupational guidance should be available to persons before they retire, and alternative employment, perhaps part-time, should be available for the elderly, if desired.

Regarding housing for the elderly, a definite policy must be formulated. Small ground-floor apartments are perhaps the most convenient. Special attention should be given to preventing traffic and home accidents. Housing for the elderly should be in accord with local customs and previous patterns of living and should receive the same careful planning as for all other age groups. The elderly should not be isolated. Better training in nutrition and dietetics is needed for those who are responsible for meals for the elderly. Care for the aged is not a matter of charity but of social justice. The aged are full participating members of society, who have a right to choose freely how they wish to live, and when possible to take care of themselves as long as they desire.

Peaceful Uses of Atomic Energy.—According to the second U. N. International Conference on the peaceful uses of atomic energy, in the minds of people everywhere atomic energy remains a threatening and mysterious force, interpreted very often in magical rather than rational terms, and fraught with irrational fears of serious social and individual consequences. The first chapter of the report of the conference examines the question of harmful effects of radiation on brain function. Data are scanty. Work, however, has shown that though nervous tissue is among the most resistant of all tissues, it can be severely damaged by large doses of radiation which the subject can survive. Experimental work on animal embryos and young animals has confirmed the radio-sensitiveness of nervous tissue during the developmental period. The adult brain, however, is exceptionally resistant to radiation. Thus, with the low doses of radiation to be encountered in the peaceful uses of atomic energy, the organic brain effects so far observed are of minor or no importance.

In advanced countries, a second industrial revolution might interfere with whatever social equilibrium and stability has been achieved. Societies have a certain threshold of tolerance for rate of change, which, if exceeded, leads to some measure of social disorganization. Still greater concern is expressed about the effect on underdeveloped areas, where the advent of atomic energy, to the extent that it accelerates the process of industrialization, can bring an increase in existing social problems. Where exaggerated hopes have been aroused, there may be disappointment and disillusionment when nuclear installations do not prove feasible or do not produce at once a miracle in the form of a higher standard of living. The repercussions from eventual disappointment may be severe and take the form of hostility against those populations which derive major benefits from atomic energy. Much will depend on the attention given to human factors in planning and development.

Evidence about emotional reactions to atomic matters is frequently found in the day-to-day conversation of people. Disagreeable weather or failure of the harvest are often blamed on atom bomb tests. Fears of the fall-out, disposal of atomic waste, pollution of water and milk supplies, and sterility or harmful genetic effects are direct expressions of anxiety. These fears conflict with many official announcements put out about risks and safety measures. It would be dangerous to ignore the fact that the emotions aroused in the public by the peaceful uses of atomic energy cannot be separated from fear and anxiety stemming from the nuclear bomb. The anxiety-producing qualities of atomic energy are ascribable to the peculiar nature of radiations—unseen, unheard, untasted, unsmelt, unfelt, and, as far as the individual is concerned, uncontrollable. Surrounded by confusion and fears, people immediately look for a scapegoat. The public, unable to distinguish between the physicist, biologist, etc., or between a scientific fact and a scientist's opinion, is confronted with apparent contradictions. Widespread publicizing of mistrust and disagreement among scientists, not only in connection with nuclear energy but also in such matters as poliomyelitis vaccine and the carcinogenic effects of tobacco, enhances this effect. Scientists do not make the task easier when they vacillate between statements limited to their scientific competence and those which have the mantle of science but which are actually policy decisions.

The relations of the scientists to the politicians also generate anxiety because of the uncertainty as to who wields the power and how. In one sense, the political leader has power over the scientists, but in another he depends on the scientist and hence is in his power. The advent of nuclear power has taken the ultimate strength out of the hands of services which are under political control and placed it in the hands of the scientist. The scientist is a civilian and not in the direct service of the state and in his role of scientist owes his first allegiance to scientific truth. As a scientist he has had no special training in discipline and obedience. It is not unnatural, therefore, that political leaders sometimes develop intense hostility to the scientists and so promulgate unrealistic decisions in attempts to control a scientific situation. Few, if any, political leaders have had enough scientific training to enable them to see the ultimate implication of scientific work. The effect is general bewilderment and a suspicion that the political leader, instead of being master of the situation, is, in fact, caught between the scientist and the next election. The relationship between the scientist and the politician requires serious study.

Since the public mainly learns about atomic developments from the press, the role of the journalist is very important. The experts were impressed by the general standard of integrity with which journalists handled atomic energy news, yet this news was often regrettably presented under scare headlines which left an enduring impression, even if the substance of the story was sober and even reassuring. The tacit newspaper principle is that bad news is good news, and this has profound implications for mental health and morale.

CORRESPONDENCE

INFECTION AND LYMPHOID LEUKEMIA

To the Editor:—On Sept. 1, 1956, four children of a family developed diarrhea and vomiting. Three of them recovered after seven days. The fourth sibling continued having diarrhea and anorexia. About 14 days after this illness began, the mother noted that he was pale and that he had some bluish spots on the skin. Seventeen days after the illness, examination disclosed that he had generalized petechiae and ecchymosis and a markedly enlarged liver and spleen, a hemoglobin level of 5 Gm. per 100 cc., and a white blood cell count of 70,400 per cubic millimeter with no polymorphonuclear cells and 100% large lymphoblasts.

Accordingly, a diagnosis of lymphoid leukemia was made, and the child was treated with blood transfusions, aminopterin sodium, mercaptopurine, and prednisolone. On Nov. 11, he had a remission, after 10 days of therapy. During this remission bone marrow examination showed no evidence of leukemia.

On Jan. 1, he had an exacerbation of his leukemia, with an elevation of the white blood cell count to 68,000 per cubic millimeter and a fall of the hemoglobin level. At this time bone marrow examination showed numerous lymphoblasts and stem cells. He had another remission after this, which lasted until March 11, 1957, when he was hospitalized again for blood transfusions. He again had a remission which lasted until March 21 when he was given another transfusion. About April 10 he developed fever, nosebleed, and a severe anemia. He finally died on April 14, 1957. Postmortem examination showed foci of immature lymphocytes scattered through the spleen, lungs, liver, and kidneys.

The other three siblings were examined on Oct. 4, 1956. One child, aged 6 years, had a white blood cell count of 5,800, with 26% polymorphonuclear cells, 72% lymphocytes, and a normal blood smear. Another child, aged 3 years and 6 months, had a white blood cell count of 7,200, with 35% polymorphonuclear cells, 58% lymphocytes, 2% eosinophils, and a normal blood smear. A third child, aged 8 years and 9 months, had a white blood cell count of 6,100, with 52% polymorphonuclear cells, 44% lymphocytes, 4% eosinophils, and a normal blood smear. It seems theoretically possible that these four children were all victims of the same infections agent from which three of them recovered, but one of them went on to develop an acute lymphoid leukemia.

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SELF-ADHERING NYLON TAPES

To the Editor:—A new nylon tape has been found which has widespread clinical application. A Swiss inventor, Georges DeMestral, became entangled in a patch of burs when he was out for a walk. Why did the burs stick to his clothing? In collaboration with a Swiss loom builder, he created synthetic burs. These tape strips are made up in two sections, one a bristle, or male surface (composed of thousands of microscopic hooks), the other a matted pile or female surface (composed of thousands of microscopic loops). The latter is sewed or stapled on as the recipient or bottom layer on whatever material is used. After the fitting on of a bandage, blood pressure cuff, brace, brassiere, diaper, knee cap, splint, or surgical garment, by overlaying the bristle portion and gently rubbing the hand across the apposing surface, from the outside, this bristle tape will lock into the position in which it has been applied to the matted surface.

These tapes can be used again and again. Certified tests by the Better Fabrics Testing Bureau, Inc., have shown that the tape can withstand 5 dry cleanings, 20 launderings, and ironing up to 300 F and that they have marked tensile strength. This method has been used in lieu of zippers and buttons to close various outer garments in the men's apparel field. This material comes in various colors, is from ¾ to 2 in. wide, and is supplied in rolls as a ribbon tape.

Clinically, I first used these tapes when a patient required a metacarpalectomy for construction of a three-fingered hand. Because she had difficulty in applying the ordinary elastic wrist band, with snaps, for compression through the metacarpal region, this new material was sewed onto an elastic wrist band. The patient had no further difficulty in applying it for compression.

These nylon tapes can be used to replace zippers, snaps, slide buckles, safety buckles, hooks and eyes, eyelets, shoe hooks, garter supporters, buttons, safety pins, metal clips, toggles, tie tapes, and adhesive tape. They are trade-marked by Velcro Sales Corp., New York, and are in short supply, but they should soon be readily available for clinical use.

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MISCELLANY

ARE WE MAKING THE SAME MISTAKES BRITISH DOCTORS MADE?

THIS BRITISH GP THINKS SO

Reprinted with permission from California GP, *June, 1958.*—Ed.

Almost every doctor who visits England comes back wanting to write an article or give a speech about socialized medicine. Because there has been so much said so many times on the subject, it has lost much of its interest.

Yet, the Academy Headquarters in San Francisco recently had a visitor from England who had some startling, frightening things to say of interest to every American doctor.

The visitor was Dr. Alastair J. Marshall, Luton, England, who is visiting in this country under a Ford Foundation Grant. As an area executive in the British Medical Association and on the executive area council (⅓ doctors, ⅔ laymen) for the national health system, Dr. Marshall can competently speak on this subject. Here are some of the questions presented to Dr. Marshall by the Academy's Executive Secretary Bill Rogers.

Did the doctors try to get together to present a united front against socialization?

Indeed they did. The British Medical Association polled the doctors and stated the act was completely unacceptable. In an initial poll only 17 percent indicated they might favor or go along with the national health act.

When the government was faced with the prospect that 83 percent weren't going to participate, what did it do?

They shot back at the BMA saying they proposed to go ahead with the 17 percent who would participate. They pointed out to the negotiators that the first people signing up would be given immediate seniority, that pensionable rights would be from that day. But the thing that really bulldozed the doctors was that during a very limited time period the government offered to buy the "goodwill" of the practices of doctors who would sign up. When they re-polled the doctors after this was announced 47 percent said they would sign up.

Do you have any idea how many of the doctors are specialists in England?

About one-seventh or one-eighth are specialists.

Has nationalization had any effect upon the number of doctors entering general practice or the specialities?

Initially there was a rush of people into specialty ranks because it appeared they were going to do considerably better. Now, everything is in a state of confusion. These young people having spent as many as 10 years as registrars (they work in hospitals as residents at a very low salary) find there are no jobs available. Many of them would like to get into general practice but find that general practitioners aren't anxious to have them either. The internists have the biggest problem.

The average GP in this country does obstetrics, pediatrics, common surgery and medicine. How does this compare with the GP in England?

Well, we do no surgery at all—the specialists have succeeded in seeing that no general practitioner has access to any hospital. The people are now conditioned to expecting specialist surgery. We do obstetrics. Most of it. That's not because the government thinks it's a good idea but there have been no hospitals built and there are no places to put these people. We know their intention is to take obstetrics away from us too once they get hospitals built.

How many GP's had hospital privileges before the government took over?

Many.

I've heard you have a bed shortage. Do you agree?

Yes! Our patients expect to wait two years for the removal of tonsils, two or three years for a chronic appendix; they will certainly wait that long for a gall bladder or a gastroectomy. Emergency surgery is done just as it was before when it is needed.

You would think this would produce a lot of private work.

True, but it is mostly in the consultative field.

Do you think socialization was forced mostly by the labor government?

No. They brought it in but it was a coalition government that started the program. Winston Churchill himself welcomed the advent of the national health service.

How have drug manufacturers fared under socialization?

Initially, very well. Now they are finding more of a "hard sell." The first few years it was wide open and anybody could prescribe anything they liked. As soon as costs rocketed the government made restrictions. Now doctors are very wary about prescribing new products since the doctors may end up having to pay for the drug themselves. The drug companies must enter into price agreements. In fact we get directives not to use certain drugs because the companies have not entered into agreement.

How many patients a day do you see now—how many were you seeing before?

Because of my commitments I have a full list and have 3,600 patients. Any patients above that I'm not paid for. Sometimes I'm forced to take on new patients such as when twins are born to a family and if I'm a friend of theirs and want them to remain as my patients. I get in my office around 8:30 in the morning and will work until noon and will see 40 to 50 patients. I'll certainly see 50 or 60 in the evening. I'll have 20 to 30 home visits. This makes a total of about 120 to 140 a day. In the old days I used to see around 35.

What's the basis of your payment?

I'm paid solely on the basis of number of patients on my list, not the amount of work I do. Besides this we're paid 65 cents for series of immunizations and we receive a delivery fee of $21. There is nothing else we get paid for.

If the government doesn't like the way you practice what can they do about it?

They can fine you after a warning. They'll do this if a patient complains you were rude, wouldn't make a house call or if the government inspectors don't find your office up to par. They will also fine you for prescribing a drug which is not approved by them.

Are hypochondriacs a problem?

They're a dreadful problem. We're knee-deep in them. The national health system has increased the neurotics considerably.

Why don't you refer some of these patients to a psychiatrist?

It's almost impossible to find one. Especially one who's sane enough to be able to go to his clinic. The psychiatrists are few and far between.

But you can dismiss patients can't you?

Yes, but I have to consider my pocketbook, family –and reputation.

Do you think the majority of the public is satisfied?

This is difficult to assess because of the conditionng everybody had with the emergency medical service during the war. I don't think they are satisied or dissatisfied. The majority just don't seem to care.

Under such a plan as this people are getting more medical care than ever before. If you discount what it's costing do you think they're getting BETTER care than prior to 1948?

Oh no. The over-all care probably is better because of those who couldn't afford any kind of care before. But almost every doctor will admit that the quality of his work has deteriorated, simply because of the mass of people that seek medical advice even for the most trivial complaints.

What effect has this had on medical education?

Well, the government was smart. When the national health act first came in they also brought in an education act which made it easier for anyone to go into medicine. In the last two years it has become very apparent this lovely "springtime" has fallen flat. Now there is a falling off of people going into medicine. I would certainly not advise my son to go into medicine today.

Where do you feel you British doctors made your biggest mistake in letting the government take over?

We were not unified and simply didn't stand firm against the government. Our lines were broken here, there and everywhere. We all feel the government would never have gone ahead with this system if we had any unification within our ranks. But ours being an individualistic profession everybody had ideas of their own and you never could get three people to agree with each other.

How effective has the BMA been in getting reforms and improvements?

Rather ineffective. The trouble is it's always approached the government completely on *ethical* lines. Now about 80 percent of the doctors belong to what we call a "guild." I suppose you might call it a union, but we don't like that term for a professional group. Because of its charter the BMA is not allowed to participate in politics and that's the reason we had to form the guild. The BMA could have been much more effective if it had the power we have given to this British Medical Guild.

How does the guild work?

It really hasn't had an opportunity to work yet. Each doctor, however, has signed a firm pledge that he will abide by the actions of the guild. If doctors are going to let each other down, then we might as well forget about the whole thing. If the guild should ask its members to resign in any given area, it will upset the entire national health plan and will be a very strong bargaining force. We'd continue to see our patients, of course, at a very low fee but would refuse to do any of the paper work. The doctors in the rest of the country would be contributing to the general fund of the guild to help support the doctors who won't be receiving anything from the national health fund. We have just about discovered the only way to fight a government is through trade union rules.

Like England there are a few doctors in this country who would not oppose government control in medicine. What advice would you give to the majority who want to see freedom in medical practice maintained?

I only wish that the AMA could finance a tour to send those doctors (who would favor a national health service) to England. Idealistically it's a wonderful thing that everybody can have free medical care and attention. But in practice it just doesn't work. The cost has rocketed about three times what it was thought the maximum costs would be. The government obviously didn't realize so many people would take advantage of it and take advantage of it so often.

What would you guess the gross annual income is for a general practitioner?

As a single practitioner his gross would probably be between $8,000 to $10,000 a year. Out of this he would have to pay for his office, equipment, car, his secretary, utilities and tax which would bring him down to a net of $5,000 to $6,000 a year. In a group a doctor can do better since you share expenses.

What about the incomes of specialists?

From the government most of them get, depending on the amount of hours they put in, around $10,000 a year. This gives them quite a bit of free time for consultative practice so they can do much better. Oddly enough they get the same income no matter what their specialty is. The eminent brain surgeon will receive just as much as a dermatologist: Internists have the biggest problem since there are many more of them than there are positions open. Those working in the hospitals waiting for a consultative post to open (some have now been waiting ten years) make around $5,000 a year.

From your own personal travels in this country do you feel we are following in your footsteps?

Unfortunately, yes. I feel the same pattern is reproducing itself here. And what is more I have seen very little evidence of your profiting by our mistakes. There is a similarity in the way governments work and you could learn much from our example.

I know you are acquainted with our Forand Bill. From your experience how do you think American doctors should approach this type of legislation?

If American doctors don't feel this is the best type of medicine for their patients they should oppose it now. But you can't do this unless you're unified—and you are *not* unified. If you Americans benefit from our experience you'll remember the words of your own Ben Franklin: "We must all hang together, or assuredly we shall all hang separately."

What is your hope for the future as far as England is concerned?

I think it's more than a hope. Within the next two years there will have to be considerable modification or we will quit. Having had 10 years of this we are much more united now than we were in 1948. At this very moment the government and the medical profession have reached a deadlock. We were on the verge of a walkout when the government set up a Royal Commission (an independent body of prominent lay citizens) to reappraise the entire program. We are now waiting for the report of the commission to see what we'll do.

Do you think most British doctors would share the views you've just expressed?

Definitely. I prepared a talk expressing most of these views before I left. To get reactions I showed a copy to both a conservative and then to a very socialistic minded doctor. Both agreed with *everything* I said. But this was what was interesting. The conservative added: "If you have any influence on American doctors you will be moving them along towards socialism." While the socialist exclaimed: "If American doctors should really take to heart what you've said, socialization of medicine in the United States could be set back 50 years.

WELFARE STATE DOWN UNDER

L. D. Hotchkiss

Reprinted with permission from the Los Angeles Times, *July 13, 1958.*—Ed.

AUCKLAND.—It's quite a change from the balmy trade winds of the tropics to the sharp blasts of winter now ruling the Land of Down Under. You go from verdure, beauty and carefreeness to sodden skies, trees barren of leaves, and people with unsmiling faces.

At this point I wish to emphasize this is no expert appraisal of New Zealand, its people, or their problems. Any person who spends only three days in a country and can diagnose its ills and prescribe immediate remedies is either a bloated egotist or a plain idiot.

All I can report on New Zealand is what I saw and what information I gained from talking with its people.

The people I talked with were friendly, sturdy, spoke more understandable English than the Australians, but gave the appearance of being tired of it all.

And Auckland—a city of 400,000—is drab looking, there is a power shortage, business is not good, but the back country is beautiful.

New Zealand today is the complete welfare state —from the cradle to the grave.

The trend started years ago and has been growing ever since. Recently a truly Socialistic government came into power and Valhalla has been reached in the eyes of the dreamers.

Already "blessed" with socialized medicine, state-operated hospitals, clinics, etc., the present government recently voted burials free of charge. Now they have the complete cycle of life on the cuff, the dreamers believe.

But taxes are extremely high, hotels have no rooms with bath, no new building of any consequence except state construction has taken place for years, and the place gives you the impression of being 25 to 50 years behind the times.

So afraid of the flight of capital is the government that a person may take only $400 out of the country. As a result New Zealanders do little traveling outside their own country.

This causes them to be quite provincial, which is no sin, but with the world moving so fast today you can't bury your heads in sand.

New Zealand is a member of the British Commonwealth of Nations.

They have sent their manpower to fight in two wars for the mother country and they fought well.

After the fall of Dunkirk, they shipped every firearm and every bit of ammunition they had to aid in England's hour of greatest peril.

Still they don't like the English immigrants too well.

"They are too bossy and they think they know everything," one New Zealander told me.

Furthermore they opened their hearts and their country to Hungarian refugees, and now they wished they hadn't. They don't understand the Hungarian and the Hungarian doesn't understand them.

Met at Auckland by one of 20th Century-Fox emissaries—through the courtesy of Harry Brand, the publicity chief who always looks out for newspapermen—we were taken on a tour of Auckland.

Our chauffeur was a native who never had been beyond the shores of his country. But he was polite, talkative, and for the welfare state hook, line and sinker.

He was, I thought, a little hepped on the matter of state housing. The state, it seems, has built most of the homes for the past 20 or 30 years and he showed us all of them. They are built of brick and all look alike. A request for a view of the best residential district of Auckland landed us right in the middle of another state housing project. Then he showed us state hospitals and state-operated homes for the aged. And although I wasn't feeling any too good, and am not a 3-year-old any more, I couldn't seem to get interested.

We went to the top of one tree hill which provided a magnificant panoramic view of Auckland and its harbor. Then we proceeded to Ellerslie race course, the most beautiful steeplechase track I ever saw. There was no racing the day we were there but the turf was the most meticulously kept I have ever seen, with due apologies to Santa Anita.

One end of the course is enhanced by a stiff hill and the steeplechase which was run the Saturday before we arrived was a four-and-one-half-mile affair and the winner took the jumps, climbed the hill, and carried 160 pounds.Winners have carried as high as 190 pounds—all of which will be sad news to trainers and owners at Hollywood Park who scream and sulk at 130 pounds for seven furlongs.

A great war memorial building stands high on a hill and can be seen for miles at sea. The New Zealanders can be justly proud of their war records. But the last conflict broke them. They insisted on paying their own way and also dropping generous sums in England's always hungry kitty.

We had a tremendous base there during the war in the Pacific, and New Zealanders proudly point out the remaining cantonments once occupied by the Americans. They rather liked us, but I don't think they ever quite understood the average American trooper. He was too free with his money and too popular with their womenfolk.

All the above happened on our first visit. The Mariposa returned from Sydney to pick up cargo, disembark and embark passengers.

With only a few hours at our disposal we hired a private taxi, piloted by a native Maori, and asked him to take us into the back country of Auckland.

A more beautiful country we had never seen. The soil is rich and it can grow almost anything. The farmhouses get away a bit from the state models in Auckland, and it really appears to be a rural Utopia.

But the tillers of the soil have a tough time making a living. They have few markets save their own and Australia.

From the taxi driver, a native of this island, we learned the mood of the people today.

The state practically runs everything. Private business operates, to be sure, but the heavy hand of state in the form of taxes and regulations stifles investments, shuts off initiative and blocks progress almost at every turn. The financial situation is so serious that just recently New Zealand had to go to her neighbor Australia for a huge loan.

"It's the younger generation we worry about," said our taxi driver. "They haven't the ambition we had; they run in gangs and they don't look to the future. They say the state will take care of them."

Somehow this statement has a familiar ring.

And perhaps we should send some of our penthouse dreamers over to live in New Zealand for six months. Their ideas of Utopia might undergo a sharp change.

As for the New Zealanders themselves we must hope and pray that the lights go on again for them, despite their Socialism.

They are our kind of people and they live not too far from the menacing Red hordes of Asia.

Personally I would like to see us take some of our loose change we are spraying around in Commie-controlled countries of the world and get it to the people of this great land.

I said people, not government.

BUSINESS PRACTICE

This is the second in a series of excerpts from the brochure on the Business Side of Medical Practice, prepared by the American Medical Association in cooperation with the Sears-Roebuck Foundation.

SELECTING THE PLACE TO PRACTICE

One of the first big decisions a physician must make is where to practice. Selection of a location should be made on the basis of a thorough, careful investigation in which the pros and cons of each possibility are weighed.

Each doctor and his family probably has some definite preferences about where to settle. Many times a physician wishes to return to his home town or set up practice in the community in which he took his internship or residency, since it may be easier to build a successful practice in an area where he and his family are known than in some new place. Or, he may have his eye on some particular "paradise" with climate appeal or other attractive recreational features.

The vital question for every doctor to consider is "Where can I build a successful practice and at the same time live a happy life?" The answer depends on an appraisal of the community and its practice-building possibilities as well as on the doctor and his family's own personalities and preferences. The young physician needs to ask questions like these:

Does the community need a physician? Can it support a physician? Can I find a good office location? Are hospital facilities available to me within a reasonable distance? Will I have access to diagnostic and therapeutic facilities? Are there drugstores in the area? Can I supplement my income with other work while building my practice?

And, equally important:

Will my family be happy here? Will we "fit in"? Can I find a suitable home? Are there churches, good schools, and stores nearby? Are there social and recreational outlets for us?

As a guide for physicians searching for an ideal location, the A. M. A.'s Council on Medical Service has published a leaflet, "Look Before You Leap," containing a checklist of considerations. It is available free on request and provides a good yardstick for measuring a possible location as a desirable place to live and practice.

Changing Population Trends

Aside from personal preferences about specific locations, a physician seeks a place where his practice will prosper. Changing patterns in population growth and in the delivery of medical care affect the economics of medicine today. With the development of new industries and the decentralization of old ones, there has been a great reshuffling of population with an exodus from cities to suburban areas. The development of modern cars and superhighways has speeded up this process so that distance no longer is a factor in obtaining speedy medical care.

Three things are of interest to a doctor searching for a location: the growth patterns of various areas, earning possibilities in these places, and the comparative need for doctors in relation to population. The West and Southwest, for example, are growing faster than other sections, and obvious growth would indicate a need for more doctors. However, it is important to find out if there is a real need or if a state already has enough doctors.

TABLE 1.—*Population per Active Physician*[*]

All United States	1,080	Montana	1,230
Alabama	1,660	Nebraska	1,110
Arizona	1,230	Nevada	1,230
Arkansas	1,420	New Hampshire	960
California	890	New Jersey	940
Colorado	910	New Mexico	1,600
Connecticut	830	New York	690
Delaware	1,090	North Carolina	1,620
Washington, D. C.	570	North Dakota	1,480
Florida	1,120	Ohio	1,140
Georgia	1,440	Oklahoma	1,220
Idaho	1,220	Oregon	1,050
Illinois	990	Pennsylvania	1,000
Indiana	1,200	Rhode Island	1,040
Iowa	1,250	South Carolina	1,750
Kansas	1,270	South Dakota	1,510
Kentucky	1,450	Tennessee	1,410
Louisiana	1,360	Texas	1,340
Maine	1,160	Utah	1,100
Maryland	1,110	Vermont	970
Massachusetts	830	Virginia	1,440
Michigan	1,400	Washington	1,220
Minnesota	1,250	West Virginia	1,490
Mississippi	1,720	Wisconsin	1,270
Missouri	1,160	Wyoming	1,340

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[*] Excluding physicians in government services. Sources: U.S. Census Bureau; American Medical Directory, 1956 edition.

The current ratio of doctors to population is one index of an area's need for M.D.'s (table 1). However, some states suffer from a maldistribution of physicians, with an oversupply in such large cities as Los Angeles and New York.

The kind of doctor an area needs is important too. It might appear that a southern state was in need of obstetricians and pediatricians, yet, where people are in the habit of calling on midwives for such services, a doctor might have a hard time building a practice.

Doctors' incomes vary in different regions of the country, but so do living costs and taxes. A good doctor who selects his location wisely will always do well.

Because of the shifts to the suburbs, many young doctors are "decentralizing," too. New shopping centers, many offering attractive medical office space and ample parking facilities, add to the appeal. The doctor who specializes limits his choice to areas needing his particular kind of skill, or at least to areas not oversupplied with his specialty. Dependent on other doctor's referrals, he may lean toward practice in a large or medium-sized city. Yet some specialists are finding that by setting up groups they can do well even in comparatively rural areas. For the general practitioner, internist, obstetrician, and pediatrician, for example, the suburbs or rural areas offer the greatest opportunities for fast practice building. In table 2 are some things to consider in weighing the advantages and disadvantages of city, suburban, or rural practice locations.

TABLE 2.—*Pros and Cons of City, Suburban, and Rural Practice Locations*

Pro	Con
City	
Good hospital facilities	Oversupplied with physicians
Good diagnostic, therapeutic facilities	Practice-building slow
Availability of M. D.'s for consultation	Hard to get acquainted with patients
Medical centers with allied medical personnel, libraries, etc.	Requires 1 to 3 years to reach point where income meets expenses
Access to all cultural activities	Lack of parking facilities
Office space available, but costly	
Suburbs	
Usually good hospital facilities	May not be many hospital beds per doctor due to population increases
Usually access to diagnostic, therapeutic facilities	Area may be attracting many other M. D.'s, too
Usually M. D.'s available nearby for consultation	
[illegible] ple [illegible] her [illegible] ard: [illegible] for new doctors	
Many cultural activities; close to city for those not available locally	
Good schools, housing	
Office space available; parking ample	
Small Town or Rural Area	
Need for doctors to replace older men; often welcome new M. D.	Hospital facilities may be fewer, or some distance away
Practice may build fast; people may be anxious to help new doctor settle	Diagnostic, therapeutic facilities may not be easily accessible
Community may build office facilities equal to or better than those found in neighboring cities	May not be M. D.'s nearby for consultation
People generally "salt of the earth"	City-folk may find adjustment to rural life difficult
Doctor soon "belongs," feels needed	
Modern transportation measures miles in minutes to both cultural and hospital facilities	
Ideal place to raise children and to make friends	

Types of Practice

The doctor entering private practice not only must decide where he wants to practice, but how he wants to practice. Three possible choices are open to him: (1) open his own office, (2) become associated with a physician already established, or (3) associate himself with a group of doctors.

Each arrangement has its advantages and disadvantages, and the choice should depend on the individual physician's preferences, philosophy, and personality, though financial considerations sometimes enter the picture (table 3).

Opening Your Own Office.—The physician who opens his own office has the satisfaction of knowing that his success is entirely due to his own efforts, but he has the full responsibility for his patients and the operation of his practice. Such responsibility can become a great burden, cutting off a doctor from his family and depriving him of time for needed rest and vacations and for postgraduate education, but, for many, the rewards of "being your own boss" far outweigh these disadvantages. The man in solo practice must be a go-getter with plenty of stamina, for, in addition to caring for his patients, running the business side of his practice, and raising his family, he is called on as a leading citizen to shoulder his share of community responsibility. To set up his own office, he must have certain financial assets to carry him to the point where his practice pays. Financial aid is usually available from banks and other sources.

Working with Another Physician.—Many physicians whose practices have grown extremely large seek young men to help share the load. There are many advantages in such an arrangement for a new physician if the locality is good, their personalities compatible, and the agreement just. Such arrangements usually require little financial investment on the part of the young doctor, and he is soon busy with new patients. Often relationships of this type are extremely satisfactory, and the close association continues for years. At the outset the senior doctor looks on the younger man as an assistant, but in later years the relationship may change to that of associate or even partner. When difficulties occur, it generally results from personality differences, poorly thought out arrangements, or misunderstandings about the relationship. For this reason, a young doctor considering such an arrangement should be as certain as possible he can work harmoniously with the senior physician.

There are no ground-rules to determine what compensation a young doctor should receive when he goes into another physician's office. Compensation is determined by how much the new doctor is needed and the amount the senior doctor is willing and able to pay. The customary financial arrangement is one of a salary during a get-acquainted period with a promotion to associate at a later date with an adjustment of compensation more closely geared to the young doctor's individual effort.

Even though any agreement involves only two parties, it is wise to put it in the form of a clearly worded written contract, so that each doctor knows what to expect of the other. The length of time the physician is to remain on salary, the exact amount of salary, and the arrangements under which he will become an associate all should be clearly defined. The contract may have a "limiting practice" clause to protect the senior doctor. This clause prevents the new doctor from practicing within a certain distance from the senior doctor's office should the younger man withdraw from the agreement. It is wise to seek competent legal counsel when drawing up such a document.

Group Practice.—Since the end of World War II, group practice has been growing in the United States. Group practice is a collective effort on the part of four or more physicians to practice medicine. Net earnings of all physicians involved in the group are then apportioned between them according to some prearranged formula.

For example, a general practitioner, an obstetrician, a surgeon, an ophthalmologist, and a dermatologist might form a group, pooling any cash for outlay of equipment and establishment of an office. As their patient load grows, the group may seek a younger man to join them, with an opportunity to become a full-fledged member of the group at some later date.

To a young physician who likes to work with others there are some definite attractions in joining a group. First, there usually is no immediate investment of funds required. Second, the young doctor has access to all the diagnostic and therapeutic equipment and services he has been taught to use, and consultation with his associates is immediately available. Aside from professional considerations, group practice may afford more free time for study and recreation, since responsibility for continuous practice coverage can be shared by all members.

Not all physicians can adapt themselves to the "group first, individual second" approach necessary in a group arrangement. Furthermore, before joining a group the physician should become thoroughly acquainted with the whole subject of group practice and the various kinds of arrangements involved. Here are two suggested references: Could You Adapt Yourself to Group Practice? (Sedgwick, *M. Econ.* 33:128, 1956); Survey of Group Practice (Report of the Council on Medical Service, *J. A. M. A.* 164:1338-1348 [July 20] 1957).

Supplementing Practice Income

Many young physicians supplement their income during the time they are establishing their own practices by serving as industrial physicians or working for various health agencies, institutions, and schools on a part-time basis. Some perform insurance examinations for insurance companies; others get jobs as city physician, caring for police and fire department staff members. The possibilities for adding to income during early practice are worth investigating.

Placement Aids

Once a physician has narrowed down his preferences to the general area in which he wants to settle and has decided the type of practice he will enter, there are reliable sources which offer assistance:

Placement services of state medical societies, offering information about placement opportunities in each state.

Placement service of the American Medical Association, 535 N. Dearborn St., Chicago 10, supplementing state medical societies' service. Available to all physicians, regardless of A. M. A. membership.

TABLE 3.—*Net Earning by Type of Practice in Various Regions**

Type of Practice	West	Midwest	Southeast	Northeast	All U.S.
General practice	$16,044	$16,975	$14,550	$12,040	$14,817
Specialty practice	18,037	20,238	18,225	16,833	18,010
Solo practice	16,025	17,100	14,962	13,967	15,028
Two-man partnership ..	18,019	21,033	19,000	19,970	19,966
Larger partnership or group	22,006	21,958	22,025	16,000	21,460
All types of practice	17,035	18,037	16,026	14,039	16,017

* Source: Medical Economics' 8th Quadrennial Survey. Figures shown are 1955 medians for physicians who derive more than half their net earnings from fees for service (Reprinted from Riss, Inc. [Oradell, N.J.], by special permission. Copyrighted 1957).

Specialty group placement services, maintained by some specialty groups, such as the American Academy of Pediatrics and the American College of Radiology, for members.

Professional placement services, specializing in physician placement, working on a fee basis. Usually have numerous salaried or contract arrangements and hard-to-fill locations. Select a service in the section of the country in which you are interested. Addresses of reliable services available from the medical director of nearly every teaching hospital.

Classified columns of medical journals, medical publications often carry advertisements for physician locations.

Other physicians and detail men. Colleagues and pharmaceutical detail men often can be of help in advising of available locations.

"Moral" in selecting a location—get as much information as possible and weigh it all carefully before making any final decision.

MEDICAL FILM REVIEWS

No Time to Spare: 16 mm., color, sound, showing time 11 minutes. Produced in 1957 by Chetwynd Films, Ltd., Toronto, Canada, for the Life Insurance Companies of Canada. Procurable on rental ($12.50) or purchase ($125) from International Film Bureau, Inc., 57 East Jackson Blvd., Chicago 4.

This film emphasizes the importance of being prepared to use artificial respiration. Correct techniques are demonstrated in a variety of circumstances—the milkman who finds a woman unconscious on the kitchen floor, the wife who finds her husband unconscious in the garage, the passerby who finds a boy face down in a swimming pond. It points out that different applications of the back pressure, arm lift method are used on adults, young children, and infants. This film is a good presentation of the back pressure arm lift method of artificial respiration and emphasizes its usefulness in emergencies. It is dramatic and effective and also shows the necessity of medical follow up to the victim after the administration of artificial respiration. While it is designed primarily for lay audiences, it would be equally instructive to professional groups. Any group conducting a safety program for its members or employees will find this film a helpful teaching tool.

Assistive Devices for the Paralyzed Upper Extremity: 16 mm., color, sound, showing time 10 minutes. Produced in 1958 by and procurable on loan or purchase ($140) from William D. Loeser, M.D., 2183 Main St., Buffalo 14.

The purpose of this film is to demonstrate the assistive devices that are available for the patient with paralysis of both upper extremities. A wide variety of these devices are shown which meet the needs of patients whose disabilities range from mild weakness to extreme and total paralysis. Included in the film are an elementary aid for the shoulder with mild weakness, the flying saucer, counter-balance slings, full slings, tip feeder, ball-bearing feeder, especially devised equipment allowing use of muscles in another part of the body to produce motion of the hands and arms, and also motorized feeder equipment. This is an excellent film which is recommended for physiatrists, orthopedic surgeons, general practitioners, residents, interns, and physical therapists, and it could also be shown to patients with poliomyelitis.

The Human Machine: 16 mm., color, sound, showing time 14 minutes. Produced in 1955 by the Moody Institute of Science, Educational Film Division. Procurable on purchase (color $115, black and white $55) from Moody Institute of Science, 11425 Santa Monica Blvd., Los Angeles 25.

This excellent film compares the body's parts and operations with man-made machines. It explains how the parts of the body function together as interdependent systems. Included are animation, photomicroscopy, and x-ray to show how all of these systems are constantly at work so that the body machine as a living organism can adjust itself to the many internal and external changes which it experiences. It contains some extremely instructive original material from nature which gives it a permanent value. It is of general inspirational and educational value. It also brings out an important message regarding the respect with which the human body should be treated. Its greatest use would be in young peoples' groups and churches. It could also be used as a supplement in junior and senior high school classes and for physicians who are called on to address these groups.

Ergot, the Story of a Parasitic Fungus: 16 mm., color, sound, showing time 26 minutes. Produced in 1958 by the Wellcome Film Unit in collaboration with Sir Henry Dale and Prof. J. Chassar Moir, London. Procurable on loan from Burroughs Wellcome (U.S.A.) Inc., 1 Scarsdale Rd., Tuckahoe, N. Y.

A comprehensive review of the history and natural history of ergot, this film contrasts the poisonous and medicinal properties of the fungus. The life cycle is presented in detail and also included is the commercial handling of ergot in Portugal and a description of artificial methods of ergot propagation in Britain. The manufacturing methods which lead to the extraction of the alkaloids are shown, and there is a sequence depicting the discovery of ergometrine in 1935. The diagrams and photomicrographs depicting the various stages in the life cycle of ergot are well done, and the section on laboratory culture and artificial innoculation of the rye plant is informative. The sequence which illustrates the technique of extraction and separation of alkaloids is also good. The film as a whole is well made, and it is recommended for showing to pharmacists and students of pharmacy.

NEW FILM ADDED TO A. M. A. MOTION PICTURE LIBRARY

Urethral Catheters: 16 mm., color, sound, showing time 24 minutes. Presented by the Smart Family Foundation in cooperation with the American Medical Association and the American Hospital Association. Prepared by Samuel Fogelson, M.D., and Vincent J. O'Conor, M.D., Chicago. Produced in 1958 by Coronet Films, Chicago. Procurable on loan (service charge $1.00) from Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10.

The modern catheter and its uses, with accent on technique of preparation and usage, is depicted in contrast to the crude methods of ancient times. Emphasis is placed on the many and varied medical and surgical conditions in which the use of the urethral catheter plays so important a role. Hospital and operating room technique of having readily available sterile catheters is stressed. Considerable progress in the factory preparation of sterile catheter packaging has been made since the film was produced; however, this does not detract from the value of the film. Presentation of the historical background and demonstration of the type of catheter and technique of preparation of the catheter trays are good. This film is highly recommended for training of nurses, interns, and medical students.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Treatment of Protracted Septic Endocarditis with Antibiotics and Its Late Results. N. S. Chikina. Terapevtickeskiy Arkhiv 30:42-47 (No. 5) 1958 (In Russian) [Moscow].

Chikina reports on 230 patients with protracted septic endocarditis. One hundred thirty-three of these received small doses of antibiotics given in an irregular form. Seventy-six patients were treated with large doses of penicillin of from 1 to 2 million units daily and 35 of these were given penicillin and streptomycin. Of the total 74.4% presented a history of a preceding rheumatic disease of the heart. Three basic variants of the disease were observed: the septic, the cardiac, and the renal. The following results of the treatment of septic endocarditis with antibiotics were observed: (*a*) complete recovery with preservation of work capacity in the presence of valvular lesions well compensated; (*b*) practical recovery without return to work capacity, and in some of these cases a lethal result from 2 to 7 years later as result of cardiac insufficiency or as result of diffuse nephritis; (*c*) protracted course of the disease from 6 to 8 years with remissions lasting 1 to 2 years and with periodic exacerbation of the general septic phenomenon easily controlled by repeated course of treatment with antibiotics; (*d*) no effect on the disease with a lethal termination, most frequently with the development of acute circulatory failure and sometimes from secondary manifestations of sepsis. Favorable effects of antibiotics on the various clinical manifestations of the disease were manifested by improvement in the general state of the patient, diminution or total disappearance of general septic manifestations such as toxicity, lowering of the temperature, diminution in the size of the spleen, return to normal cardiac function and arterial pressure, and normalization of the blood. Histological studies demonstrated in the majority of the cases the presence of an ulcerative process on the heart valves despite the favorable therapeutic effect of the antibiotics on the various clinical manifestations of the disease. The best therapeutic effect of the antibiotics was noted in the septic variant of the course, particularly in the primary types of endocarditis without a preceding rheumatic fever; less favorable effect was noted in the cardiac clinical variant and least effect in the renal variant. A rapid development of circulatory failure in the course of the treatment was associated with acute perforation and deformation of the valves as a result of the reparative processes. Another unfavorable element was presented by myocardial changes as a result of the primary disease or of the preceding rheumatic cardiosclerosis. The best results were obtained by early treatment and systematic administration of large daily doses of antibiotics.

Clinical Experience with the SGO-Transaminase Test in Myocardial Infarction. M. A. Chapin. J. Maine M. A. 49:263-269 (July) 1958 [Brunswick].

The activity of serum glutamic oxalacetic transaminase (SGO-T) was followed for 2 to 6 days in the serums obtained from 54 patients with acute myocardial infarction who were admitted to the Central Maine General Hospital in Lewiston, Maine. The SGO-transaminase test was performed in an attempt to corroborate the clinical and electrocardiographic findings in these patients. The peak rise of the serum activity of the tested enzyme within 12 to 30 hours after the acute attack of myocardial infarction was 2 to 25 times the normal in 53 of the 54 patients. Serial electrocardiograms were abnormal but not diagnostic of the acute attack in 9 (16%) of the 54 patients with acute myocardial infarction. All of these had increased SGO-T activity reflecting the attack. SGO-T activity also was tested in 12 patients with angina pectoris, and in 17 patients with such other cardiac condition as coronary insufficiency, congestive heart failure, arrhythmias or acute pulmonary edema; the SGO-T activity was not elevated in these patients.

These results confirm those by other workers concerning the value of SGO-T determinations in the diagnosis of acute myocardial infarction. The SGO-T test should be used when there is a history of a previous myocardial damage, when heart block or arrhythmias are present, and when there is recurrent chest pain during convalescence from acute myocardial infarction; when the chest pain is atypical the SGO-T test should be performed as an aid in ruling out pulmonary infarction and various other cardiac, pulmonary, or acute upper abdominal conditions.

The place of publication of the periodicals appears in brackets preceding each abstract.

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Prevention of Rheumatic Fever by Treatment of Streptococcal Infections: II. Factors Responsible for Failures. F. J. Catanzaro, Ch. H. Rammelkamp and R. Chamovitz. New England J. Med. 259:51-57 (July 10) 1958 [Boston].

The authors present a study on 5,198 patients examined during a 5-year period to determine the factors responsible for the development of rheumatic fever following therapy for a streptococcic infection. Only patients in whom Group A streptococci were present in the oropharynx at time of admission and who received treatment with one of the antibiotics or sulfadiazine were selected for this study. Of this group 76 patients had acute rheumatic fever and 46 (61%) showed the infective type during convalescence in contradistinction to the 20% infective type carrier rate in the total study population. An additional 16 (21%) of the 76 rheumatic patients showed a new type during convalescence as compared to 10% in the total treated group. In this study 9 (12%) of the total patients developed rheumatic fever within a few hours of the streptococcic infection. Other factors that may have accounted for some therapeutic failures were the acquisition of a new infection after therapy and, of less importance, a history of previous rheumatic attacks or recent streptococcic infections. Of the various methods employed, an injection of 600.000 to 1,200,000 units of benzathine penicillin not only is the least expensive but also requires only one injection and affords protection against reinfection or new infections for a period of three to six weeks. Oral forms of therapy may be employed but must be maintained for at least 8 to 10 days if the convalescent-carrier rate is to be reduced appreciably. Since the development of rheumatic fever after a streptococcic infection cannot be prevented in all cases by the treatment of such infections, the necessity for continuous prophylaxis in patients who have experienced one rheumatic attack should be emphasized.

Association of Functioning Carcinoid Syndrome and Scleroderma: I. Case Report. C. J. D. Zarafonetis, S. H. Lorber and S. M. Hanson. Am. J. M. Sc. 236:1-14 (July) 1958 [Philadelphia].

The authors present a 42-year-old woman who exhibited the classical signs of the carcinoid syndrome such as paroxysmal flushing of the skin, associated with telangiectasia, colicky abdominal pain and diarrhea, cardiac murmurs, and scleroderma-like changes of the lower extremities. Despite the fact that the diagnosis is obvious in retrospect, the correct diagnosis was not made while the patient lived. In addition to the typical clinical features of the carcinoid syndrome this woman presented 2 manifestations of unusual interest. One was the patient's history of extreme sensitivity to alcohol. Ingestion of only a small amount of alcohol was said to provoke generalized flushing and edema. This observation is not unique, having been noted previously in 4 other subjects with carcinoid tumors. The second unusual aspect was the extent of fibrosis. The fibrotic changes observed in the liver, inferior vena cava, and right heart are those classically associated with functioning carcinoid tumors. This has been emphasized from the time of the earliest case reports.

Carcinoidosis was established as the cause of death on autopsy, which revealed malignant carcinoid of the ileum with metastases to the liver, lungs, heart, breast, and appendix. Fibrotic changes were observed not only in the liver, inferior vena cava, and right heart but also in the skin of the legs, and in association with the tumor metastases. In view of the propensity of metastasized functioning carcinoid tumors to produce fibrotic changes in the right heart, it is surprising that little attention has been given to the possibility that similar changes might be induced elsewhere in the body. The authors cite several cases from the literature that are of interest as regards the extensive fibrosis, and point out that the woman presented also had extensive fibrotic changes. They also recall that a number of observers have postulated that the sclerosis of the valves of the right side of the heart is due to an excessive amount of serotonin produced in the hepatic metastases and released into the venous circulation. Failure to induce similar alterations on the left side of the heart appears to be due to the destruction of the serotonin by monoamine oxidase present in the lungs during the pulmonary phase of blood circulation.

Gastric Moniliasis (Candida albicans). R. G. Tinajero Ayala. Rev. med. Hosp. Gen. 21:269-293 (May) 1958 (In Spanish) [Mexico, D. F.].

Prolonged administration of antibiotics of any type may cause local and chronic or systemic and fatal Candida albicans infection. Gastric moniliasis from Candida albicans is extremely rare. The diagnosis is difficult. Only one case has been reported in the literature. The diagnosis was made during an autopsy. A woman 33 years old was hospitalized with a disease which had lasted for 3 months. The symptoms consisted of chills, headache, nausea, vomiting, dizziness, acute epigastric pain, weakness, marked loss of weight, melancholia, and periods of alternating constipation and diarrhea. The symptoms appeared at intervals of about 1 or 2 weeks, lasted for 3 or 5 days, and abated markedly, but they did not disappear entirely and after an interval they became aggravated. The treatment consisted of enemas, analgesics, Terramycin by mouth and intravenously, and penicillin. On hospitalization, it was observed that the cervical lymph nodes were enlarged and there was leukocytosis. A roentgenologic gastroduodenal examination showed what seemed to be a gastric neoplasm. A teleroentgenogram of the thorax showed that there were neither signs of bronchopulmonary disease nor pulmonary nor mediastinal metastases. Penicillin at daily doses of 1,000,000 units was given intramuscularly to the patient for 3 consecutive days. The treatment was discontinued when gastroscopy established a diagnosis of gastric moniliasis from Candida albicans. Repeated roentgenologic gastroduodenal examinations and gastroscopies were performed at intervals of weeks thereafter. The patient was on a proper diet with administration of vitamins. Biopsy during gastroscopy showed the presence of atrophic chronic gastritis. Candida albicans was identified from cultures of the gastric content taken during gastroscopy and also in cultures of material of gastric lavage given to the patient. Daily gastric lavages with lukewarm water with sodium bicarbonate were given to the patient for 3 consecutive weeks, at the end of which the patient had apparently recovered. She gained weight, the cervical lymph nodes became normal, and all symptoms disappeared. Repeated roentgenologic examinations of the gastroduodenal tract and repeated gastroscopies showed that the colonies of Candida albicans at first occupied the greater curvature of the stomach, from which they disappeared to reappear at the antropyloric region, from which they again disappeared to reappear at the fornix. The patient had become intolerant to sodium bicarbonate, and there was still Candida albicans in the material of a gastric lavage. Nystatin was given to the patient in daily doses of 500,000 units 3 times a day. Immediately the patient reported very ill with symptoms suggestive of gastritis and of gastric moniliasis. The roentgenologic gastroduodenal examination and gastroscopy showed a new colony of monilia at the antropyloric region. The final successful treatment consisted in administration of Amphotericin-B in daily dose of 4 Gm. for 15 days and of 6 Gm. for a few more days not specified by the author. Disappearance of the new colony of monilia from administration of amphotericin-B, was verified by roentgenologic examination of the gastroduodenal tract and by gastroscopy. The results, however, are too recent to justify definite conclusions.

Esophageal Hiatus Sliding Hernia: An Endoscopic Study. A. E. Dagradi, R. N. Killeen and R. Schindler. Gastroenterology 35:54-61 (July) 1958 [Baltimore].

The authors performed esophagoscopic and/or gastroscopic examinations on 106 men and 1 woman, between the ages of 20 and 79 years, with esophageal hiatus hernia of the sliding type. Esophagoscopy alone was performed on 26 patients, gastroscopy alone on 66, and both procedures on 15. Gastroscopy was complete in 72 patients, with both the subphrenic and supradiaphragmatic portions of the stomach being visualized. In 14 patients (19.4%) a normal sac and body were seen. Thirty-three patients (45.8%) showed abnormalities of the gastric mucosa limited to the hiatus hernial sac. The most frequently observed abnormality in this group was superficial and atrophic gastritis (15 cases each). Nine of these cases of gastritis were of the hemorrhagic type and explained the symptoms of hematemesis and/or melena. Three patients had hypertrophic gastritis. Transition was seen from superficial gastritis in the pouch to occasional atrophy in 2 patients undergoing multiple gastroscopic examinations over a period of several years. In 9 patients mucosal disease was seen in the body of the stomach, whereas the mucosa in the hiatus hernial sac was normal. The most common abnormality observed was superficial gastritis, which was found in 6 of the 9 patients. In 2 of them, it was the result of subtotal gastric resection (gastritis of the postoperative stomach). In 2 patients with Laënnec's cirrhosis associated with hiatus hernia varices were seen in the sac on gastroscopy, and in 1 patient a gastric diverticulum was seen in the pouch. In 16 patients (22.2%), mucosal disease was observed both in the main body and in the sac. Here again, the most common abnormality was atrophic gastritis (12 cases). In 2 patients of this group gastric ulcers were seen in the sac proper and were not shown on roentgenologic examination. In 1 patient a gastric ulcer of the lesser curvature was seen in the subphrenic portion of the stomach.

Of the 41 patients in whom esophagoscopy was accomplished, the esophageal mucosa was normal at the time of examination in 24, esophagitis was present in 9, and esophageal stricture with esophagitis was found in 4. In all of these patients the esophagitis was limited to the lowermost segment of the organ. The esophagoscopic method was less satisfactory for the detection of abnormalities of the mucosa in the herniated gastric pouch than was the gastroscopic method. The gastric mucosa was reported to be normal on esophagoscopic examination in 26 patients and was not seen in 4 patients in whom esophageal stricture prevented the instrument from entering the sac. Simple atrophic gastritis was present in 2 patients and superficial gastritis was observed in 9 patients. In this group active bleeding from the inflamed mucosa, together with erosions, was observed in 7 patients.

The frequency with which disease of the gastric mucosa has been found to be limited only to the herniated gastric pouch is noted. Gastritis of the superficial and atrophic types is the most commonly observed abnormality, and bleeding in association with gastritis frequently stems from erosion of the inflamed mucosa within the hiatus hernial sac. The reported data emphasize the clinical importance of endoscopy as an adjunctive procedure to radiography in patients with sliding esophageal hiatus hernia.

Results of Medical Treatment in Hiatus Hernia. C. A. Flood and G. C. Hennig. Gastroenterology 35:62-73 (July) 1958 [Baltimore].

The authors report on 52 men and 68 women, of the average age of 55 years, with roentgenologic evidence of hiatus hernia who had gastrointestinal symptoms the duration of which varied from a few days to 31 years. Twenty of the 120 patients also had a peptic ulcer which was located in the stomach or duodenum. The patients were given medical treatment which included a liberal bland diet of the type usually advised for the treatment of peptic ulcer, including feedings between meals. Alkalies and mild sedatives were prescribed after meals. The group of 100 patients with hiatus hernia without associated ulcer of the stomach or duodenum was observed for periods ranging from 6 months to 10 years. Thirteen of them were subjected to surgical treatment because of an unsatisfactory response to medical treatment.

The symptoms of hiatus hernia tended to be intermittent. During about one-half of the follow-up periods the patients were either free from symptoms or had, at most, mild bloating or heartburn which were readily relieved by appropriate medical treatment. Only 13 of the 100 patients had intractable distress with nocturnal heartburn or substernal pain which persisted for many months or years and could not be satisfactorily controlled by the usual therapeutic measures; 9 of these patients were finally operated on. There was no common factor in these patients with intractable symptoms which might explain the unfavorable clinical course. Inflammatory changes around the site of the hernia were revealed by the operation in 7 of the 9 patients; this perioesophagitis may well have played a part in the symptomatic picture in some of these patients. Moderate or severe symptoms occurred during about two-thirds of the follow-up periods in the 20 patients with hiatus hernia and associated ulcer of the stomach or duodenum. The results of medical treatment in the 18 patients who had at least one gross upper gastrointestinal hemorrhage and in the 10 patients in whom a stricture of the esophagus was observed showed no tendency for such patients to have persistent or frequently recurrent symptoms. The course of the disease in these patients was usually relatively benign; about one-half of the follow-up periods were attended by mild symptoms or absence of symptoms.

The results obtained in these patients with hiatus hernia suggest that the symptomatic course of the individual patient is the chief factor on which prognosis under medical management should be based. Prognosis was not necessarily related to such factors as duration of symptoms, the size of the hernia, or the demonstrability of gastroesophageal reflux on roentgenologic examination. Surgical intervention may be considered for those patients with continuing, rather severe symptoms which are not appreciably controlled by medical measures. It may be indicated in certain patients in whom multiple hemorrhages have occurred. Occasionally, patients with stricture of the esophagus may require surgical intervention if dilations cannot be carried out. Surgery may likewise become necessary in patients with hiatus hernia and ulcer of the duodenum or stomach. The reported data do not support the view that surgical intervention should be advised for patients with hiatus hernia as a prophylactic measure in order to avoid the complications of the disease.

Prognosis of Hodgkin's Disease. P. Croizat, P. Ponthus, J. Papillon and others. Presse méd. 66:1135-1138 (June 25) 1958 (In French) [Paris].

A statistical study of 110 patients with Hodgkin's disease observed and treated since 1939 by the same team of clinicians and radiotherapists has revealed certain important elements that have a bearing on the prognosis and course of the disease. These elements are of 3 kinds: those relating to the clinical and biological syndrome; those relating to the patient; and those relating to the treatment. The duration of the average survival in these patients (41.8 months from the initial treatment, not from the onset of the disease) has only a limited value because it links the 68 who died and whose survival time was accurately known but relatively short with the 42 who are still alive and whose survival time has been artificially set at a level below the fact. A more reliable criterion is provided by the duration of the first remission, that is, the period between the initial treatment and the first relapse. This period of symptomatic equilibrium has an undeniable prognostic value and indicates the patient's future. Division of the patients into 3 groups—60 who relapsed during the 1st year, 21 who relapsed between the 1st and 2nd years, and 24 who passed the 2nd year without a relapse—showed that the average survival in the 1st group was 28.5 months; in the 2nd group, 56.6 months; and in the 3rd group, 63.9 months. This criterion is equally valid in relation to the late results, so that patients who have not relapsed by the end of 2 years may be regarded as having 1 chance in 2 of surviving for 5 years or more.

Clinical and biological elements with an adverse effect on the prognosis are diffusion (Peters' stage 3), enlargement of the spleen, involvement of the prevertebral lymph nodes, fever and impairment of the general condition, and anemia. Consideration should also be given to the character of the swollen lymph nodes. Those that are fibrous and low in radiosensitivity from the beginning are certainly less favorable than those with a soft consistency, an abundance of Sternberg cells, and high radiosensitivity. Hodgkin's disease is admittedly more severe in men than in women, and this characteristic, which is undoubtedly linked to hormonal conditions, was evident in these patients. The average survival time for men was 36.2 months as against 46.7 months for women, and the average length of the first remission was 14.1 months as against 23.3 months.

Analysis of the effect of therapy on prognosis indicates that the duration of the first remission is clearly dependent on the kind of treatment given. Too few patients were treated surgically to permit any definite conclusions, but prolonged remissions were secured in 3 of the 6 who were operated on. The disease in all 6 patients, however, was localized and limited to a single lymphatic territory. Radiotherapy, when started as soon as possible and given intensively enough to sterilize the irradiated territory, with the not inconsiderable help of chemotherapy (nitrogen mustard), is undoubtedly responsible for durable remissions and a prolongation of the survival time, which amounted in 6 patients to 10 years and in 3 to more than 12 years—a period of remission long enough to be regarded as equivalent to a cure.

Intrinsic-Factor-Inhibiting Substance in Serum of Orally Treated Patients with Pernicious Anaemia. M. Schwartz. Lancet 2:61-62 (July 12) 1958 [London].

The author studied serums from healthy persons and from orally treated patients with pernicious anemia for the presence of antibody against intrinsic factor, pointing out that pernicious anemia has been treated with intrinsic factor for more than 25 years, especially in the Scandinavian countries. Hog pyloric mucosa causes substantial absorption of vitamin B_{12} in pernicious anemia, and such preparations administered initially almost always produce complete remission, but in prolonged treatment with preparations of this type a considerable proportion of the patients relapse, and several have shown myelopathy. The cause of the failure is a block in the intestinal absorption of vitamin B_{12} with hog pyloric mucosa as intrinsic factor; the block is not present when homologous intrinsic factor is administered. The block may be due to some sort of sensitization. Recently an antibody to Castle's intrinsic factor was reported by Taylor and Morton. They immunized rabbits with intrinsic factor preparations from man and from pig pylorus and found in the serum of the treated rabbits a substance inhibiting human and pig intrinsic factor respectively. The authors used Schilling's urinary excretion test. Vitamin B_{12} labeled with Cobalt 60 (Co^{60}) was administered by mouth, and 2 hours later unlabeled vitamin B_{12} was given intramuscularly.

Studies were made on serum from healthy persons and from 4 groups of patients: (1) untreated pernicious anemia patients; (2) those in whom pernicious anemia had been treated for from 1 to 5 years with oral preparations of vitamin B_{12} plus hog pyloric mucosa; (3) pernicious anemia patients treated orally with a crude stomach preparation; (4) pernicious anemia patients treated by injection. Intrinsic-factor-inhibiting activity was found in a considerable proportion of serums from patients with pernicious anemia treated orally. Serum from healthy persons and patients with untreated pernicious anemia contained no such activity. As intestinal absorption of vitamin B_{12} proved to be normal in some patients with inhibiting activity in the serum, and as the intrinsic-factor-inhibiting activity was shown to operate also against human intrinsic factor, such activity is probably not the sole cause of the intestinal blockade following long-continued oral treatment of pernicious anemia.

Behçet's Syndrome or Touraine's Aphthosis. P. Thibault. Presse méd. 66:1000-1001 (June 4) 1958 (In French) [Paris].

Behçet's syndrome, in which 3 components—recurrent iritis, hypopyon, and mucosal aphthae—are associated, is the best known but not the most frequent manifestation of Touraine's aphthosis, a complex general disease of infectious (probably viral) origin. The basic elements invariably present in aphthosis are buccal and genital aphthae, alone or in small numbers, which give rise to burning and itching and which may lead to inflammatory reactions in the affected tissues. Spontaneous recovery is characteristic of the disease, but recurrences are common and may occur at intervals for 20 years. Nonaphthous manifestations, which appear chiefly in severe forms of the disease, may be cutaneous, ocular, articular, visceral, vascular, general, or nervous. Ocular manifestations, which form part of Behçet's syndrome, were found by Touraine in 62 of 148 patients with aphthosis. Conjunctivitis, alone or in association with iritis, is transitory but may recur with the aphthae. Keratitis, too, is often recurrent. Iritis, alone or with hypopyon, which may be unilateral at first but generally becomes bilateral, is a serious complication because when it is recurrent the iridocyclitis or total uveitis by which it is often accompanied may lead to synechiae, atrophy of the ciliary body, and a greater or lesser loss of visual acuity that may become permanent and definitive.

Less well known manifestations of the disease are those affecting the nervous system. Some consist of extrapyramidal disturbances that may suggest those of multiple sclerosis. Others take the form of paresis of the legs with urinary disturbances, quadriplegia, or monoparesis for which the patient is forced to seek advice. The prognosis in Touraine's aphthosis, which is usually benign so far as life is concerned, becomes somber in patients with neurological manifestations. Severe cases run a fatal course in spite of the use of cortisone, either alone or in association with antibiotics. The suggestion has been made that the infection reaches the brain from the eye, traveling along the optic nerve, but the fact that ocular lesions were lacking in 3 of 18 cases with neurological complications reported in the literature is a serious objection to this theory. Some authors have proposed replacement of the term Behçet's syndrome by the term Behçet's disease, because the neurological manifestations constitute a 4th element in addition to the standard 3. The absence of ocular lesions in some cases, however, makes it seem better to regard the condition as a part of the major syndrome of aphthosis described by Touraine.

Pathergic Granulomatosis (Wegener's Granuloma) of the Lung: Five Cases of Similar Clinical Courses and Pathologic Findings. R. M. Hood, H. V. O'Connell and D. L. McCord. Am. Rev. Tuberc. 78:21-37 (July) 1958 [New York].

The author's report on 3 men and 2 women between the ages of 19 and 35 years, whose chest roentgenograms showed diffuse, fine, nodular, pulmonary infiltration throughout both lung fields. Three patients were asymptomatic during the entire 4-year period of observation. One woman had complaints of malaise, fever, and weight loss for 4 months before admission to hospital; this patient became asymptomatic while under observation and without any specific therapy. Biopsy of the lung was performed and revealed granulomatous lesions associated with tissue eosinophilia and angiitis in all 5 patients. Despite the angiitis, necrosis was not a prominent feature. The inflammatory reaction within the vessel walls was characterized by polymorphonuclear and round-cell infiltration in all layers. Endothelial proliferation was present in some but not in all. The bulk of the granulomatous masses was composed of aggregates of epitheloid cells, macrophages, lymphocytes, plasma cells, and myriads of eosinophils. The surrounding lung parenchyma not involved in the granulomatous process showed some alveolar distortion and compensatory emphysema. Four patients showed no clinical or laboratory evidence of involvement by a granulomatous process of the upper respiratory passages, kidneys, the vascular system outside the lung, or of any other organ system. The remaining patient was the only exception, having in addition a solitary rib lesion histologically typical of eosinophilic granuloma. None of these 5 patients has had symptoms, physical signs, or laboratory findings of allergic disease states, nor did any of them show peripheral eosinophilia.

Similar findings have been reported in the literature under various names and by many workers. Histologically, the cases of the 5 patients were strikingly similar to those reported as Wegener's granulomatosis of the lung but their clinical courses were benign. Pathologically the various lesions did not differ sufficiently in the patients to require that, because of various clinical findings and courses, their diseases be considered as unrelated diseases of different causation. The term "pathergic granulomatosis" suggested by Fienberg who defines the word "pathergy" as "the totality of morbid phenomena which can be produced by a state of altered tissue reactivity," is recommended by the authors for general use until the causation of this group of diseases is clarified. Fienberg suggested the division of the diseases into 2 groups, the first of which is comprised of patients having widespread lesions or multiple organ involvement and the second group consisting of those in whom the lesions are confined to a single organ or organ system. Four of the 5 patients belonged to the second group, and 1 to the first group. The diagnostic value of lung biopsy has again been demonstrated.

Gas in the Pancreas as a Sign of Abscess. J. W. Agnos and R. B. Holmes. Am. J. Roentgenol. 80:60-66 (July) 1958 [Springfield, Ill.].

Two patients with a gas-containing pancreatic abscess are presented. The patients were women, aged 70 and 44 respectively. The elderly woman was investigated because of an upper gastrointestinal hemorrhage and symptoms suggestive of a peptic ulcer. Roentgenography of the abdomen showed an extensive gas-containing cavity occupying the greater portion of the left upper quadrant and displacing the gas-filled stomach to the right and the splenic flexure inferiorly. Just to the left of the spine, superimposed on the gas shadow of the stomach, was a small cluster of radiolucencies. A diagnosis of pancreatitis and subphrenic abscess was made on the basis of the roentgenologic findings. A small incision was made just below the left costal margin. Fluid and air gushed out through the incision and 1,500 cc. of serosanguineous, foul-smelling fluid was aspirated. The findings confirmed the roentgenologic impression of a mass associated with the pancreas. An empyema in the left pleural space was drained 2 weeks later. The cluster of radiolucencies, seen on admission, was still present but reduced in size 6 weeks later. One month later, a left paramedian incision was made over the mass in the abdomen. A drainage tube was inserted. The clinical course was downhill and the patient died 1 week after the final operation.

In the second patient a plain roentgenogram of the abdomen showed a collection of small radiolucencies, up to 0.8 cm. in diameter, located to the right of the spine, extending to the lower lumbar region, and covering an area 9 by 10 cm. At operation a mass was found in the mesocolon in front of the duodenum and pancreas. There was fat necrosis and the pancreas contained calcific plaques in the tail and body. The mass was incised and a quantity of gray-yellow purulent material was evacuated, together with large pieces of necrotic pancreatic material. The pathological diagnosis was pancreatitis with fat necrosis and pseudocyst. Postoperatively, a gastrointestinal series showed a deformed duodenal cap. In an addendum the authors state that 3 additional patients with gas-containing pancreatic abscess were observed since the preparation of this paper. Of the total of 5 cases, 4 showed collections of gas bubbles on the roentgenograms (1 showed a single cavity with irregular walls); 3 were fatal. The contention that an abscess or pseudocyst complicating pancreatitis can be predicted from a persistently elevated serum amylase level is unfounded, since in 2 cases in which serial amylase determinations were carried out, the levels were normal. Abscesses of the pancreas may occur in association with acute pancreatitis or may follow an exacerbation of chronic pancreatitis. Surprisingly, they are very rare as a complication of a penetrating peptic ulcer.

Hyperthyroidism. I. W. Rose Jr. North Carolina M. J. 19:255-258 (July) 1958 [Winston-Salem].

Laboratory investigation of hyperthyroid conditions is dependent generally on the assessment of the basal metabolic rate, measurement of the precipitable or protein-bound iodine, and the utilization of radioactive iodine (I^{131}) techniques. One of the latter procedures involves the measurement of the amount of iodine which is taken up as compared to either the total dose or the speed with which it is taken up. Another method is the I^{131} release test which determines the rate at which the labeled hormone is released from the gland. Localization techniques are possible in the event of discrete nodules. Surgery, the use of antithyroid drugs, roentgenologic therapy, and I^{131} therapy are the 4 modes of treatment in common usage today. Treatment with I^{131} is indicated in persistent or recurrent exophthalmic goiter following surgery, in exophthalmic goiter in persons past the age of 40, in the patient who refuses or is refused surgery on the basis of medical or emotional conditions, and in the patient with malignant exophthalmos. I^{131} is contraindicated in the exophthalmic goiter patient under 40, in patients with toxic nodular goiter, in patients with very large toxic goiter, in pregnant women, and in the severely hyperthyroid patient. Although attention has been directed largely toward laboratory procedures and methods and conditions for treatment, laboratory procedures, as such, are merely adjuncts to astute clinical evaluation, the selection of treatment on an individual basis being considered far better than any rules that can be laid down.

Antibiotic-Resistant Staphylococcal Outbreaks in a Medical and a Surgical Ward. M. Barber and A. A. C. Dutton. Lancet 2:64-68 (July 12) 1958 [London].

Two outbreaks of staphylococcic infection in hospital wards are reported. The first outbreak was in a male medical ward, the second in a male surgical ward. Each outbreak was due to the admission of a patient with superficial staphylococcic infection. In both outbreaks the offending staphylococcus was resistant to erythromycin as well as to penicillin, streptomycin, and tetracycline, and in 1 outbreak the erythromycin resistance followed treatment of the initial patient with this antibiotic. In the medical ward, although the bedding of 7 patients in widely scattered areas of the ward was infected, there were no cases of severe sepsis. After the infected patients had been discharged and all the blankets and ward curtains had been superseded by fabrics treated with a quaternary ammonium compound, the epidemic strain was no longer found. In the surgical ward a single strain of Staph. pyogenes of phage type 80 caused severe infections (of which 1 was fatal) in 8 patients, 2 nurses, and 1 surgeon. The offending strain was only eliminated by closing the ward and by spraying with cetrimide (a quaternary ammonium antiseptic).

Comparative Severity of Atherosclerosis in Costa Rica, Guatemala and New Orleans. C. Tejada, I. Gore, J. P. Strong and H. C. McGill Jr. Circulation 18:92-97 (July) 1958 [New York].

The authors' study is concerned with the comparative severity of aortic atherosclerosis in low-income Costa Ricans, Guatemalans, and New Orleans whites, which was studied in 941 aortas obtained from autopsies. No significant differences were observed in the 4 grades of atherosclerosis in the 3 countries before the age of 30. The size and extent of the lesions increased progressively with age in patients over 30; the increase was most rapid in New Orleans and least rapid in Guatemala. Racial factors are unlikely to be responsible, therefore, environmental factors might account for these differences, of which diet appears to be one of the most important. The dietary habits, serum cholesterol levels, and lipoprotein levels were compared with the pathological findings in the patients of the 3 countries. There is an apparent correlation between the dietary fat intake, the serum cholesterol levels, S_f 0-12 lipoprotein fraction, and the degree of aortic atherosclerotic lesions as measured by these methods.

Pleural Biopsy in Diagnosis of Effusions: Results in 50 Cases of Pleural Disease Observed Consecutively. H. E. Hill, N. M. Hensler and I. A. Breckler. Am. Rev. Tuberc. 78:8-16 (July) 1958 [New York].

Biopsy specimens of the pleura were obtained from 42 male and 8 female patients, between the ages of 2 and 48 years, with pleural effusion or thickened pleura. Of the 50 consecutive patients, 32 had pleural disease which was considered to be of tuberculous origin. Biopsy tissue was histologically and/or bacteriologically diagnostic in 19 (59%) of the 32 patients. With other methods, exclusive of pleural biopsy, the tuberculous origin of the pleural disease was established in only 11 patients (34%). Of 18 patients with pleural effusion of nontuberculous origin, pleural biopsy was diagnostic in 1 patient, helpful in another, and noncontributory in 16. Pleural biopsy by open biopsy techniques with the aid of local anesthesia is a simple and safe procedure. It has proved to be a valuable addition to the traditional diagnostic techniques in pleural disease of tuberculous origin, materially increasing the number of definite diagnoses obtained. The finding of nonspecific inflammation or noninflammatory tissue cannot be used to exclude the presence of tuberculosis. The technique may be of value in occasionally establishing a diagnosis of neoplasm or nontuberculous inflammatory disease.

Pleuritis in Systemic Lupus Erythematosus: Its Importance as an Early Manifestation in Diagnosis. W. A. Winslow, L. N. Ploss and B. Loitman. Ann. Int. Med. 49:70-88 (July) 1958 [Lancaster, Pa.].

Pleuritis, with and without effusion, was found in 41 of 57 patients from whom chest roentgenograms were available for study and in whom the diagnosis of systemic lupus erythematosus was established beyond reasonable doubt either during life or by autopsy. Certain criteria were used for the diagnosis during life which appeared to be justified by the findings in 23 of the 24 patients in whom the diagnosis was established by autopsy. Pleuritis was recorded in 10 of 20 additional patients with systemic lupus erythematosus from whom chest roentgenograms were unobtainable. Pleuritis appeared as an isolated first sign in 3 of the 57 patients; it appeared with few antecedent symptoms of systemic lupus erythematosus in 16 additional patients. Despite this high incidence of early pleuritis in patients with systemic lupus erythematosus, a review of the literature showed that sufficient weight was rarely given this disease in the differential diagnosis of "idiopathic pleuritis."

By far the most striking symptoms of systemic lupus erythematosus which preceded pleuritis was arthritis or arthralgia. The manifestations of systemic lupus erythematosus coinciding with pleuritis were pericarditis and pneumonitis, but with a lower incidence than had been noted by other workers. Pleuritis was followed by complete clearing in 14 of the 39 patients with uncomplicated disease who were followed by chest roentgenograms, and in 8 pleuritis cleared save for minimal pleural residua. Survival after the first pleuritic attack averaged 39.9 months, with 23 of the 41 patients still alive at last follow-up. Bilateral pleuritis, either simultaneous or alternating, was observed in 23 patients, and in 13 of the remaining patients the pleuritis was left-sided. Despite the tendency to frequent infections in patients with systemic lupus erythematosus, it was possible to rule out infectious, neoplastic, and metabolic causes of the pleuritis in most patients. In view of the increasingly favorable results of treatment in patients with systemic lupus erythematosus, not only symptomatically but also in objective prolongation of life, the prompt study of cases of unexplained pleuritis is urged for systemic lupus erythematosus as well as for tuberculosis or neoplasm.

SURGERY

Direct Vision Correction of Mitral Insufficiency. E. B. Kay, C. Nogueira and H. A. Zimmerman. Surgery 44:325-332 (Aug.) 1958 [St. Louis].

The authors report on 17 patients, between the ages of 19 and 51 years, with disease of the mitral valve who were operated on at the St. Vincent Charity Hospital in Cleveland, Ohio, with use of a rotating disk-type oxygenator for total cardiopulmonary bypass and direct vision correction of the valvular defect. Thirteen patients were operated on for mitral regurgitation and 4 for mitral stenosis. A left-sided exposure was used in 4 patients and a right-sided exposure in 13. After the exposure the various anatomic, pathological, and physiological aspects of the mitral valve were determined by digital examination before opening the auricle in an attempt to assess the various contributing factors and to formulate the plan of attack. A variety of annular plication was used in correction of mitral regurgitation. Multiple point plication was employed primarily in patients with pure mitral regurgitation. Medial annular plication was used in patients with "tear drop" deformity. Bilateral annular plication was used primarily in patients with "patulous" deformity. Occasionally an Ivalon plug was used to prevent overlapping of valve cusps. Elective cardiac arrest was employed in 8 patients; 4 of them had ventricular fibrillation which was treated by electric shock. The duration of the cardiac arrest varied from 15 to 35 minutes.

There was spontaneous resumption of the normal heart beat in the other patients. There were no arrhythmias in the 9 patients in whom intermittent aortic occlusion was employed, even though the occlusion lasted as long as 4 to 5 minutes in some of the patients.

There was 1 operative death which occurred in the first patient to be operated on. The lungs were congested, and other evidence of cardiac failure was present, including pleural fluid, an enlarged liver, and peripheral edema. The operation was long and a blood imbalance was present at the end of the procedure which, in combination with a prolonged cardiac arrest of 35 minutes and myocardial insufficiency, contributed to this failure. Of the 4 patients who were operated on by the left-sided approach with use of cardiac arrest, 1 had a poor result and another had only a fair result. In retrospect it is felt that with the heart stopped it was impossible to evaluate properly the residual insufficiency and to take the necessary steps to correct it. The other patients have all done well for periods of 2 to 8 months. It is still too early for a long-range evaluation. With the use of a mechanical pump-oxygenator, direct vision correction of mitral regurgitation will now be a realization. It is felt that the right-sided approach to the mitral valve allowing the heart to beat during the surgical correction, but with intermittent aortic occlusion, will be associated with the greatest number of successful results. The surgeon must, however, be able to vary his operative technique to best cope with the individual problems presented in each patient. The operative mortality and morbidity are extremely low. Definite factors in this morbidity and mortality are the myocardial insufficiency and pulmonary vascular disease present in the patient with far-advanced mitral insufficiency. Operative intervention should be employed before irreparable damage occurs.

Cancer of Tongue: 100 Cases. V. E. Argonz. An. Cir. 23:35-39 (Jan.-March) 1958 (In Spanish) [Rosario, Argentina].

One hundred patients with cancer of the tongue were observed at the Tumor Institute of Rosario, Argentina, between 1944 and 1954. Most of the patients were between the ages of 50 and 70 years. Eighty-three were men and 17 were women. The tests for syphilis gave positive results in 16 patients. The cancer was located at the base (root) of the tongue in 42 cases; it involved the three thirds of the movable part of the tongue in 5 cases and 1 or 2 thirds of the movable part of the tongue in 43 cases. In the remaining 10 cases the cancer was located either at the lateral edges or at the ventral surface of the tongue. The tumor was Basal cell epithelioma in 93 cases, carcinoma in situ 1, hemangioendothelioma in 1, tumor of the mixed glandular and mucous type in 1, carcinoma with reticular cells in 3, and fibrosarcoma in 1. The basal cell epithelioma was of the second or third degree of cellular differentiation in almost all cases. Cervical metastases showed on hospitalization in 65 patients; they developed in the course of the treatment in 6 patients, and did not appear at all in 29 patients. Fourteen patients were already at the inoperable stage of the disease. They were not given any treatment, not even palliative. In the remaining 86 patients, the treatment consisted of roentgenotherapy to 30 patients, radium to 15, surgical removal of the cancer lesion from the tongue in 3, combined roentgen and surgical treatment in 9, and radium combined with surgery in 29 patients. Metastases at a distance appeared in 9 patients in the course of the treatment. They were generally located in the liver, lung, or cervical vertebrae, but in some cases the metastases appeared in the form of diffuse carcinoma. They were the immediate cause of death in all patients. Forty-nine patients (including the 14 patients who were in the inoperable stage of the disease) died within 1 year after hospitalization; 30 patients are living without any recurrence or residual lesion. Fifteen of these patients had lived between 1 and less than 5 years, and the other 15 patients had lived for more than 5 years. One patient is living with local metastases 15 months after surgical removal of half of the tongue. The author concludes that cancer of the tongue is almost as frequent as cancer of the lips or of the larynx, and that the prognosis is very poor. The treatment should be conducted as follows: Interstitial radium when the lesions are located at the movable part of the tongue, teletherapy when the lesion is at the root of the tongue, and radical dissection when there is cervical adenopathy. Cervical adenopathies should not be dissected early but only when they are clinically demonstrable. Dissection in block is indicated when the primary tumor cannot be controlled, as shown by results of histological examinations.

Oophorectomy in Breast Cancer: An Attempt to Correlate Results with Oestrogen Production. R. D. Bulbrook, F. C. Greenwood, G. J. Hadfield and E. F. Scowen. Brit. M. J. 2:7-11 (July 5) 1958 [London].

The first of 2 groups studied had been oophorectomized prior to the initiation of this investigation and no preoperative estrogen levels were available. In the second group both preoperative and postoperative estrogen determinations were made. Four premenopausal patients who had shown a history of regular menstruation were studied after oophorectomy. The results indicate that oophorectomy in premenopausal women removes a major source of estrogen production, however adrenal secretion of estrogen is always detectable after operation and can vary within wide limits, and would possibly afford a rational explanation for the clinical failure in the 2 patients who died 7 months postoperatively. Remission of the disease process was obtained in 2 of the 4 patients although estrogen was always detectable in the urine. The preoperative estrogen levels in the menopausal (menstruated within the last year prior to operation) group are low compared with those found in premenopausal women and suggest that an ovarian contribution in the menopausal group was lacking prior to operation. The immediate effects of oophorectomy on estrogen secretion would appear to be determined by the degree of operative stress and the individual reaction to such stress. In 1 patient the level increased for 1 month postoperatively and the course of the disease was not affected; in another instance the excretion fell to zero only to increase with the progression of the disease; and in the 2 other cases the immediate effects were not maintained. The overall effect of oophorectomy in the postmenopausal group is that both the clinical course of the disease and the estrogen level remain unaltered. Estrogen derived from the adrenal glands appears to be present in all patients following oophorectomy. The removal of this source of production by further endocrine surgery is indicated when oophorectomy fails to arrest the progress of the disease.

Adrenalectomy in Breast Cancer: An Attempt to Correlate Clinical Results with Oestrogen Production. R. D. Bulbrook, F. C. Greenwood, G. J. Hadfield and E. F. Scowen. Brit. M. J. 2:12-15 (July 5) 1958 [London].

Continued excretion of estrogen produced by the adrenal cortex occurs after oophorectomy in the majority of women with breast cancer. When adrenalectomy fails to induce a growth regression in breast cancer estrogen independence is assumed. Of the 13 patients studied only 3 were in remission at the time that estrogen estimations were carried out. In the first case regression of the tumor was associated with the virtual disappearance of estrogen from the urine. In the second case, which illustrated the transition from regression to relapse, estrogen excretion was persistent during regression, rising considerably during relapse until shortly before death. The third case, which likewise demonstrated the transition from relapse to remission, did not demonstrate an accompanying rise in estrogen excretion. Of the remaining 10 cases described in this series, 5 patients either derived no benefit from adrenalectomy or, when the estrogen estimations were carried out, were in relapse and not excreting detectable amounts, while the other 5 patients were excreting estrogen while the disease was progressing. Bilateral adrenalectomy caused a marked reduction in the amount of estrogen excreted, but complete abolition of excretion was not always achieved. Continued estrogen excretion did not preclude objective regression, and conversely progression of the disease process did occur in spite of the fact that no estrogen could be detected in the urine.

Hypophysectomy in Breast Cancer: An Attempt to Correlate Clinical Results with Estrogen Production. R. D. Bulbrook, F. C. Greenwood, G. J. Hadfield and E. F. Scowen. Brit. M. J. 2:15-18 (July 5) 1958 [London].

The beneficial effects of hypophysectomy as an effective means of palliation in a significant proportion of cases of metastatic breast cancer have been ascribed to the inhibition of ovarian and adrenal function due to the removal of the relevant pituitary trophic hormones and to the removal of those pituitary hormones which might have a direct influence on breast cancer. In the 16 patients studied estrogen determinations were carried out both preoperatively and postoperatively. Of the 11 patients who obtained regression following hypophysectomy 4 had been previously treated by oophorectomy, 5 were postmenopausal, and 2 had undergone both adrenalectomy and oophorectomy. The anticipated effect of hypophysectomy is reduction or abolishment of estrogen excretion, and this was found to be true in this series for women past the menopause or those in remission following oophorectomy. In 7 of the 9 patients in the latter category no estrogen could be detected after the first postoperative month. In 2 instances in this same group estrogen was detected preoperatively. In 2 of the 11 patients obtaining remission following hypophysectomy estrogen was detected in the urine postoperatively. Four women comprised that group of patients which did not benefit by hypophysectomy. All had previously been treated by mastectomy; 3 had undergone subsequent oophorectomy; and the fourth had not menstruated for a year following a course of testosterone treatment. At the time of operation all of the patients showed evidence of skeletal metastases which were unaffected by hypophysectomy. The average survival time was 8 months. In no cases was estrogen excretion abolished or reduced by operation. The last of 16 cases was a male who suffered from widespread metastases which were not altered by either orchidectomy or subsequent hypophysectomy, the latter operation reducing but not abolishing estrogen secretion. Patients deriving no benefit, generally, tended to have a high preoperative estrogen excretion, and continued to excrete estrogen after operation.

The Effect of Hypophysectomy in Advanced Carcinoma of the Breast. D. N. Baron, K. J. Gurling and E. J. R. Smith. Brit. J. Surg. 45:593-606 (May) 1958 [Bristol, England].

The authors report on 57 women, between the ages of 24 and 69 years, who were admitted to the Royal Free Hospital in London with advanced cancer of the breast. Fifty-two of these underwent surgical hypophysectomy, 2 had pituitary stalk section alone, and 3 had radioactive seeds inserted by the nasal route. Previous treatment had included radical mastectomy in 39 patients, local mastectomy in 4, irradiation therapy in 44, and adrenalectomy in 5. Of the 52 patients subjected to surgical hypophysectomy, 17 (33%) were in the premenopausal stage, 21 (40%) were in the postmenopausal stage, and 14 (27%) had undergone either surgical or irradiation castration. Surgical hypophysectomy with the insertion of 5 unscreened radioactive gold seeds (Au^{198}) is considered the best method of pituitary ablation. The seeds are placed deep in the fossa, 1.5 cm. below the optic pathways, and kept in place with fibrin plaques above and below; they emit beta particles and gamma rays. A higher proportion of women in the premenopausal stage improved after hypophysectomy than was the case in the postmenopausal group. There were 7 operative deaths among the 52 women undergoing this operation; death resulted from cerebral hemorrhage in 4, from extensive cerebral softening apparently due to venous thrombosis in 2, and from pulmonary edema in 1. Two patients died within the first postoperative month, 1 of pulmonary insufficiency due to irradiation fibrosis, and the other of increasing cachexia. Of 33 who survived the operation for 3 months or more, 22, i. e., 42% of the 52 patients, showed objective evidence of improvement with regression of the growth in 15, and with arrest of the growth in 7. Subjective improvement including relief of pain, increase in appetite, and increased feeling of well-being occurred in 25 of the 33 patients. The average duration of remissions was 8.1 months, the longest being 27 months, and 12 patients are still alive. Eleven of the 33 patients showed no improvement. There appeared to be a prolongation of life from an average of 3.2 months for patients showing no response to an average of 10.1 months in those showing improvement.

The pituitary fossa was examined at autopsy in 17 patients, and an attempt was made to make a rough estimate of the volume of anterior lobe-tissue remaining. Results showed that total ablation of all anterior pituitary tissue is rarely possible, but clinical improvement was observed with between 10 and 20% of tissue in the fossa. There was little evidence of regrowth of the pituitary stalk or of the parenchyma of the gland. The results of postoperative tests of pituitary function have been reviewed and correlated with the findings on postmortem examination of the pituitary fossa. Hypophysectomy is an effective method of palliating advanced metastatic cancer of the breast and it is preferable to adrenalectomy, but it should not be considered a routine procedure. Hypophysectomy may contribute materially to the elucidation of cancer metabolism and hormone dependence. The search for new methods of treatment must continue.

Emergency Portacaval Shunt. W. P. Mikkelsen and A. C. Pattison. Am. J. Surg. 96:183-192 (Aug.) 1958 [New York].

The authors utilized end-to-side portacaval shunt, performed through a right thoracoabdominal incision, as an emergency procedure during acute bleeding from esophagogastric varices in 11 selected patients, 7 women between the ages of 19 and 67 years, 1 9-year-old girl, and 3 men between the ages of 48 and 63 years, with hepatic cirrhosis. The indications for emergency surgical intervention in these patients were ineffectiveness of tamponade in controlling bleeding in 1, immediate recurrence of bleeding on release of tamponade in 5, early recurrence of bleeding while recovering from previous hemorrhage in 4, and an erroneous diagnosis of bleeding peptic ulcer in 1. All patients were either actively bleeding at the time of the surgical intervention or had bled actively within 12 hours of it. None were in coma and only 2 had shown encephalopathy in the days before the surgical intervention. Liver biopsy specimens obtained during the surgical intervention confirmed the diagnosis of cirrhosis in all patients.

Four of the 11 patients died in their early postoperative period. Death resulted from irreversible shock 5 hours after the surgical intervention in 1 patient; another patient died 24 hours after the operation in coma; and the remaining 2 died in coma on the 7th and 36th postoperative day respectively. Three of the 4 deaths occurred in patients who had marked jaundice at the time of the operation. In none of the survivors was the total serum bilirubin level over 1.8 mg. per 100 cc. Late death occurred in 2 of the 7 survivors; both died in hepatic coma, one 2 years after surgery and the other 3 months after the intervention. Five patients are alive 2½, 4, 20, 26, and 27 months after the surgical intervention. With 1 exception, bleeding from esophagogastric varices ceased abruptly with completion of the surgical intervention in all patients even though balloon tamponade was not employed postoperatively in any. The exceptional patient had been bleeding almost continuously for 32 days and balloon tamponade had been used intermittently for 16 days preceding the operation; 4 hours after the surgical intervention, hematemesis of 200 cc. necessitated the reinstitution of tamponade for 10 hours. After removal of the tamponade tube at this time no further bleeding was observed.

The conclusion that portal decompression as accomplished by end-to-side portacaval shunt can be relied upon to terminate varical bleeding, in almost all cases, immediately, appears to be warranted. Preoperative jaundice was an unfavorable sign with regard to survival. Comparison of results obtained in these patients with those in whom emergency temporizing procedures were utilized suggests that the operative mortality differs little and that effective control of bleeding is more likely to be obtained by portacaval shunt. It still remains doubtful that any of the emergency operations currently in use will significantly improve the total mortality for these cirrhotic patients with severe bleeding from esophagogastric varices.

The Diagnosis and Clinical Management of Hepatic Coma in Surgical Patients. J. S. Najarian, H. A. Harper and H. J. McCorkle. Am. J. Surg. 96:172-182 (Aug.) 1958 [New York].

The authors studied the diagnosis of hepatic coma and the response of this syndrome to treatment in 64 surgical patients, 48 with portal cirrhosis associated with gastrointestinal hemorrhage and 16 with surgically constructed portal-systemic venous shunts. Hepatic coma is a neuropsychiatric disorder which should be suspected as a possible causative factor in patients with such clinical manifestations as changes in the state of consciousness, motor activity, and changes in deep tendon reflexes. Since increased concentration of ammonia in the blood of patients with hepatic coma is probably one of the most important factors in the occurrence of this syndrome, these manifestations were used for dividing the ammonia intoxication into 3 encephalopathic stages including delirium, stupor, and coma. The concentration of ammonia in the blood of over 90% of the patients was found to correlate with the clinical progression of the encephalopathy. Electroencephalographic changes were found to be helpful in making the diagnosis of hepatic coma in some patients.

Methods for decreasing the production of ammonia by the action of intestinal bacteria on nitrogenous substrates, as well as for the control of the concentration of this metabolite in the blood, were an important part of the clinical management of hepatic coma. When gastrointestinal hemorrhage was the precipitating cause of hepatic coma, control of bleeding and prompt removal of the accumulated blood from the gastrointestinal tract by catharsis, gastric lavage, and enemas were found to be essential in controlling the production of ammonia. The oral administration of broad-spectrum antibiotics was also valuable in reducing the ammonia within the gastrointestinal tract. It was essential to withdraw the dietary protein completely during the acute phase of hepatic coma, and in order to avoid recurrence of this syndrome a limitation of protein intake often was necessary during the chronic state of ammonia intoxication. The amino acid arginine was used to enhance detoxification of ammonia within the body of 59 of the 64 patients; 25 Gm. of arginine was given intravenously over a 2-hour period and the infusion was repeated if necessary in 8 to 12 hours. There was a prompt decrease in blood ammonia concentrations associated with clearing of the sensorium. Although 44 of the 64 patients were initially in stupor or coma when treatment was started, only 19 patients died, an over-all mortality rate of only 30%.

Treatment with Androgens for Mammary Carcinoma in the Woman. A. E. Vaccato and F. De Bernardis. Minerva med. 49:2345-2351 (June 13) 1958 (In Italian) [Turin, Italy].

Treatment with testosterone alone or combined with other therapeutic procedures was instituted in 298 women with mammary carcinoma at the Surgical Clinic of the University of Padua during the past 10 years. Sixty-six patients were unmarried women (22.1%), 185 were married and had had children, and 47 were childless married women. Mammary carcinoma without clinical evidence of metastases was present in 110 women (36.9%) at the beginning of chemotherapy. The largest incidence of mammary carcinoma per age bracket was found among women in their fifties or sixties. Simple mastectomy was performed on 5 patients with fibrocystic mastopathy. Mastectomy according to Halsted's technique with dissection of the axillary fossa was performed on 258 patients or with dissection of the supraclavicular space on 11 patients. Twenty-four patients were in an inoperable state, due to the extensive metastases. After surgery a course of roentgenotherapy was given to all patients except in 6 who were in the inoperable state.

Chemotherapy, which was instituted in all patients, consisted of intermittent administration of testosterone in several courses. The dosage of each course gradually increased from 300 mg. up to 5-6 Gm. per course. Testosterone was combined with paraoxypropiophenone in the treatment of 6 inoperable patients; or it was combined with prednisone in other 13 inoperable patients. The survival time in this series of patients, even among those with diffuse metastases, was longer than in other groups, which were previously observed. This improvement can be ascribed to a combination of better surgical therapy, perfection of roentgenologic treatment, earlier diagnosis, and, in particular, to a more potent hormonal therapy. Metastases, which mostly invaded the lungs, developed in 129 patients (47%) in a period between 6 months and 7 years after chemotherapy had been instituted. Metastases in the bones were the most responsive to the testosterone treatment.

Transantral Decompression for Malignant Exophthalmos. J. S. Walker and G. L. Porter. A. M. A. Arch. Otolaryng. 68:152-155 (Aug.) 1958 [Chicago].

Thyrotropic exophthalmos, which is also described as malignant exophthalmos, is manifested by protrusion of the eyes of a "noncompressible" type (the so-called hard orbit) and is associated with some or all of the following: edema of the eyelids, chemosis of the conjunctiva, engorgement of orbital and ocular vessels, paresis or paralysis of extraocular muscles, and failing vision. The treatment of malignant exophthalmos may require medical management only, or a combination of medical management and surgery. Basically, 3 surgical approaches are in use; the first attempts protection of the eye by using the lids or conjunctiva for covering; the second attempts to reduce the mass packed in the orbit by the removal of intraorbital fat; and the third accomplishes a true decompression by the removal of confining bony wall. In 4 instances excellent results were obtained by these authors with transantral decompression, which indicates that this procedure is worthy of serious consideration and further trial. The technique is simple and is essentially that of Hirsch, who introduced the procedure successfully in 1929, save for the modification whereby the intraorbital canal is removed. The orbital floor is removed after access is gained through a sublabial incision and exposure and removal of a portion of the anterior antral wall. Anteroposterior incisions through the fascia divide the floor into 3 strips; the center strip is left intact and the outer strips are divided by an incision in the coronal plane, affording further relief of intraorbital pressure. An inferior meatal window completes the surgery, and the wound is closed and an elastic bandage with mild pressure is placed over the eyes. Prompt improvement was apparent within 3 days, and an almost complete recovery from acute symptoms took place within the week. No complications have occurred.

Neurofibrosarcoma of Cranial Nerve Origin. S. G. Economou, H. W. Southwick and D. P. Slaughter. A. M. A. Arch. Surg. 77:271-281 (Aug.) 1958 [Chicago].

The authors report on 7 male and 7 female patients between the ages of 6 and 59 years, with neurofibrosarcoma of cranial nerve origin, on whom 32 operations were performed. Eight patients had subcutaneous nodules, 4 had tumors arising within deeper structures of the head and neck, and 2 had an associated neurofibromatosis. Ten patients are alive and without evidence of recurrent tumor for postoperative periods ranging from 2 to 9 years, with 4 being free of disease for over 5 years after the operation. One patient is alive but has recurrent disease, 2 patients died of their disease, and 1 patient died of intercurrent disease without evidence of neurofibrosarcoma. In the absence of specific nerve involvement, subcutaneous neurofibrosarcomas of cranial nerve origin should be treated by adequate local excision. If the nerve can be identified, it should be exposed far beyond the tumor mass in a search for synchronous tumors and the nerve should be resected as far proximally as possible. Neurofibrosarcomas involving more deeply situated nerves can be treated most effectively by an "en bloc" excision of the involved area and further proximal excision of the nerve.

Neurofibrosarcomas have a high incidence of local recurrence. This is believed to be a manifestation of multicentric origin of tumors along the involved nerve. Neurofibrosarcomas metastasize through venous channels, and surgical interventions for their removal in the area in question should not be designed as for those lesions which metastasize predominantly through lymphatics. There appears to be a correlation between the microscopic gradation of the tumor and the postoperative salvage. The longest survivals were observed in the patients with relatively well-differentiated tumors; the degree of tumor anaplasia seems to have a clear relationship to the surgical curability of the tumor. Likewise, tumors possessing a pseudocapsule have a more favorable prognosis. Patients with generalized neurofibromatosis in whom neurofibrosarcoma occurs have a uniformly poor prognosis.

Results of Thoracic Surgery in the Treatment of Pulmonary Tuberculosis. H. W. O. Frew, K. Fraser and W. McL. Gregor. Brit. J. Tuberc. 52:244-254 (July) 1958 [London].

This report deals with the first 200 consecutive patients with pulmonary tuberculosis who were treated in a thoracic surgery unit between September, 1952, and October, 1955. The patients were representative of those receiving sanatorium treatment. All had undergone routine treatment with various courses of chemotherapy and it was only after prolonged sanatorium treatment (a minimum of 3 months) that many were considered suitable for surgery. Many had long-standing extensive lesions; the disease was bilateral in some of the patients, while in others it was confined to 1 lobe and presented essentially as areas of unclosed cavitation or large and relatively soft tuberculomas. There were 105 men and 95 women. All operations were performed by 1 of the authors. When the unit opened in 1952, 2-stage thoracoplasties were being performed, but after some months this operation was replaced by 1-stage thoracoplasty. One-stage thoracoplasty entailed removing the entire first rib, almost half of the second, 2½ in. of the third, 1½ in. of the fourth ribs and occasionally a small portion of the fifth rib. The lung apex was dissected out by dividing the fascial bands which hold it up to the brachial plexus and first thoracic vertebra. It was then stripped down to below the azygos vein on the right side, or the aortic arch on the left, and held in its new position by stitching the pleural cap of the lung apex to the periosteum of the vertebrae. This type of thoracoplasty preserves much more healthy lung than the older 2-stage and 3-stage operation, and deformity is minimized.

In 1952 extrapleural pneumothorax was popular, but this operation has largely been replaced by more permanent procedures. In general, resection was carried out for tuberculomas, a medium-sized or large cavity, anteriorly placed disease, lower lobe disease, a collapsed and/or bronchiectatic lobe, or a destroyed lobe or lung. The extent of disease found at operation dictated the amount of lung tissue resected: 1 or more segments, 1 or more lobes, or pneumonectomy. A modified type of thoracoplasty was done at the same operation in all cases of lobectomy or pneumonectomy. The total number of operations was 211, several patients requiring more than 1 form of surgical treatment. The thoracoplasties consisted of 58 1-stage, 53 2-stage, and 1 3-stage operations. Patients in whom resection was done had at least 1 drainage tube, and if much alveolar leakage was anticipated, 2 drains were used; both were inserted low in the axillary line and 1 was carried right up to just below the first rib. This long tube had 3 openings to drain different levels within the chest. If there was considerable escape of air, motor suction was applied to both tubes. The drains were removed in 2 to 3 days. Any apical air space remaining was treated by aspiration. Intensive physiotherapy was insisted on, with special emphasis on breathing exercises, expectoration of sputum, and the prevention of skeletal deformity. The patients were kept in bed for 6 to 8 weeks after the operation, and received training in hospital for 5 months after surgery. All operations were timed to coincide with a course of chemotherapy.

Four patients died as the result of the operation, and 4 others died later. Sixty-seven per cent of the 188 patients who could be traced at least 2 years after the operation were regarded as cured and all but 3.2% derived considerable benefit from the treatment. Whereas before operation the sputum of 84% of the patients contained tubercle bacilli, it was free from bacilli after operation in 95.9% of the patients. Eighty per cent of the patients were able to resume their work.

Otalgia with Oesophageal Hiatus Hernia. W. D. F. Malherbe. Lancet 1:1368-1369 (June 28) 1958 [London].

The disturbances caused by hiatus hernia may appear completely unrelated to the gastrointestinal tract, with the result that patients are referred to specialists in other fields. Hiatus hernia may cause precordial symptoms which closely simulate angina pectoris. An apparently causeless secondary anemia may exist, the hernia being discovered only after careful examination of the gastrointestinal tract. Reflex vagal disturbances may lead to crises of bradycardia with a fall in blood pressure and loss of consciousness. Hiatus hernia may also present with pain in the ears. Since 1956 the authors observed 3 patients with a combination of earache and abdominal symptoms, who were found to have hiatus hernia. The anatomic basis for this phenomenon is that both esophagus and external auditory meatus are supplied by the vagus nerve, and the pain is probably referred. The earache disappeared after effective treatment of the hernia.

Analytic Investigations on Bronchial Carcinoma: A Clinical Statistical Study on 801 Bronchial Carcinomas. U. J. Wassner and W. Knothe. Arch. klin. Chir. 288:462-484 (No. 5) 1958 (In German) [Berlin].

The number of patients who come to clinics with bronchial carcinoma is constantly increasing, and the duration of the history of symptoms, that is, the time that elapsed between the appearance of the first symptoms and the patient's admission to the clinic, is becoming shorter than in former years. Despite the shorter histories, however, the percentage of operable tumors and the length of survival are not increasing to the same extent. This suggested that the duration of symptoms before treatment is only one aspect which greatly depends on other factors. In order to ascertain the importance of the interrelationship of various factors influencing the development of a bronchial carcinoma, the 801 patients studied had to be divided into smaller groups that were comparable. The typical age of onset of bronchial carcinoma is between 49 and 61. The best prospects for operation and for length of survival cover this same span of years. The duration of the history of symptoms depends on the rapidity of growth of the bronchial carcinoma. The rapidity of growth in turn is decided by the histological type of the tumor. In the case of squamous cell carcinoma the history of symptoms usually extends over 5 months, whereas in case of undifferentiated parvicellular carcinoma it is usually only 3 months. However, the rapidity of growth of the various types of ulcer is determined also by the age of onset. The squamous cell carcinoma grows at about the same rate in patients of different ages, but the growth rate of the parvicellular carcinoma increases noticeably with advancing age. The length of history or the duration of symptoms is dependent also on the location of the bronchial carcinoma. In the presence of a carcinoma of the main bronchus the history of symptoms is usually 5 months, whereas in the case of a lobar carcinoma it is 3 months.

Studies made it appear probable that transitional forms from squamous cell carcinoma to undifferentiated parvicellular carcinoma occur usually in patients between the ages of 40 and 50 years. Operability and chance of survival depend also on the histological characteristics of the tumor, its location, the age of the patient at the time of onset and the duration of symptoms. A shorter history of symptoms as such is of only slight significance. The course of bronchial carcinoma is usually already decided when the first tumor symptoms appear, this is true especially in the undifferentiated parvicellular bronchial carcinomas. In order to combine and to express the interdependence of the various aspects of bronchial carcinoma, the authors describe the concept of the "carcinoma number," which they believe will be helpful in ascertaining the prognosis of the patient with bronchial carcinoma. This number is arrived at on the basis of an equation in which the quotient, resulting from the division of the patient's age (in years) by the duration of symptoms (expressed in months), is multiplied by a factor expressing the histological character of the carcinoma and by a factor expressing the location of the growth.

Congenital Absence of the Gallbladder and Cystic Duct. B. Pines and D. M. Grayzel. A. M. A. Arch. Surg. 77:171-180 (Aug.) 1958 [Chicago].

The authors report 5 instances of congenital absence of the gallbladder and cystic duct in the presence of normal biliary passages: the first, in a 74-year-old man with symptoms of epigastric pain, nausea, vomiting, malaise, and increasing jaundice of 1 week's duration who was operated on; and the others, in 4 male patients between the ages of 22 months and 83 years in whom this rare anomaly was an incidental finding at autopsy performed at the Jewish Hospital in Brooklyn, N. Y. One hundred fifteen cases of congenital absence of the gallbladder and cystic duct, observed with almost equal frequency at operation and at autopsy, were collected from the literature. Preoperative diagnosis of this condition has never been made. It is usually observed during the course of celiotomy which is performed for symptoms that are suggestive of calculous cholecystitis and/or choledocholithiasis. When it is observed at autopsy, it is an unsuspected, incidental finding. The most commonly accepted theory is that this condition is the result of a disturbance of the embryonal development of the hepatobiliary tree which has been reviewed in order to elucidate the unknown causation of the anomaly. Emphasis is placed on the fact that congenital absence of the gallbladder and cystic duct predisposes the bile passages to anatomic and physiological derangements, which, in turn, lead to inflammation of the bile ducts and stone formation in a large number of patients. An understanding of the nature of the pathological sequelae which are associated with agenesis of the gallbladder is vitally important to assure rational management of these patients.

Although no pathognomonic clinical syndrome exists to indicate absence of the gallbladder, there is generally a consistent pattern of characteristic symptoms, such as shown by the 74-year-old patient, which may alert the clinician who has a high index of suspicion. Definitive surgical treatment is indicated in all symptomatic patients in whom the gallbladder and cystic duct are congenitally absent. The procedures vary with the nature of the associated alterations in the bile passages. Sphincterotomy in conjunction with T-tube drainage was successful in some patients whose cases were collected from the literature and in whom ampullary dysfunction was suspected to be the cause of the patients' symptoms, especially when the common-bile-duct passage was wide and no calculi were present. In other patients with agenesis of the gallbladder in whom the common duct was dilated to cystic proportions, a Roux-en-Y choledochojejunostomy was successful in 2, and in 2 others a resection of the cystic area and an end-to-end anastomosis of the common duct resulted in a cure. When stones were present, choledocholithotomy, prolonged T-tube drainage, and sphincterotomy were the preferred treatment. In most patients, prolonged drainage gave optimal results.

Gallstone Ileus. J. P. Rijken. Nederl. tijdschr. geneesk. 102:1298-1301 (July 5) 1958 (In Dutch) [Amsterdam].

The author discusses the pathological anatomy, clinical diagnosis, and treatment of gallstone ileus on the basis of a review of the literature and of 14 patients with this disorder observed in the surgical department of his hospital during the period from 1941 to 1957. The group included 12 women and 2 men. Four of these patients died after surgical treatment. Three of 7 patients died before 1947, but after 1947 only 1 of 7 patients died. The patients ranged in age from 53 to 86 years; the average age was 70.6 years. The diagnosis of gallstone ileus had been considered in only 2 of the patients. Five of the 14 patients had a history of gallstone symptoms. Signs of obstruction had existed for an average of 6 or 7 days before operation. The stone was found in 12 patients in the small intestine, in 1 in the sigmoid, and 1 patient had multiple stones.

The author emphasizes the following points: 1. Intestinal obstructions caused by a gallstone have a much higher death rate than do those from other causes. 2. This is due to the fact that the diagnosis is made rather late and also to the advanced age of the patient. 3. Treatment consists in the prompt removal of the stone by enterotomy, after fluid and electrolyte balance has been restored. 4. The advisability of cholecystectomy at a second operation should be considered. 5. Roentgenologic examination should not be restricted to the gallbladder but should be extended to the gastrointestinal tract, so as to detect possible cholecysto-enteral fistulas. 6. The high death rate of gallstone ileus can be reduced by more thorough clinical and roentgenologic studies. The more frequent use of cholecystectomy in patients with gallbladder disease might prevent gallstone ileus.

The Surgical Management of Chronic Tophaceous Gout. W. A. Larmon and J. F. Kurtz. J. Bone & Joint Surg. 40A:743-772 (July) 1958 [Boston].

This report is based on the surgical management of 23 patients with chronic tophaceous gout admitted to the Veterans Administration Hospital, Hines, Ill., from 1947 to 1957. Ninety-nine surgical procedures were performed in the 23 patients. Gout until recent times was attributed to dietary indiscretion, but in the past decade it was shown that the increased level of uric acid in the blood is due to a metabolic defect in the formation of uric acid, which is a normal end-product of purine metabolism. Its source may be exogenous from food or endogenous from cellular metabolism. A third source of uric acid may be by direct synthesis from simpler compounds. This concept is based on studies with radioactive isotopes and indicates that the gouty patient forms an abnormal amount of uric acid from these various sources. Tophi do not form in all patients suffering from gout. Tophaceous gout is a late manifestation of the severe form of this metabolic disturbance. The majority of patients with gout have recurring attacks of acute arthritis with no demonstrable permanent joint changes between attacks. If routine studies were carried out in patients with acute arthritis to determine the presence of elevated serum uric acid levels, many more cases of gout would come to light in a stage amenable to medical management.

The authors feel that surgical intervention is warranted when tophi are unsightly, are painful, interfere with tendon function, or threaten to cause skin necrosis and ulceration; also when tophi have ulcerated or sinuses are present; when tophi encroach on nerves causing symptoms of compression; when joints are being destroyed and are painful; and when the total amount of urates in the body can be lowered by excision of readily accessible large tophi. General anesthesia is preferable to local, because distention of tissues with the local anesthetic agent may impair the blood supply and cause necrosis of skin.

Incisions should parallel the blood supply of the part. Counter-incisions in the fingers and toes should be avoided as necrosis of the intervening skin may result. Sharp dissection is preferred when feasible, but curettage may be done to remove the maximum amount of urates while preserving essential structures. Gentle handling of tissues is necessary. Wounds should be irrigated to prevent necrosis and to aid in removal of the tophi. Resection of joints, arthroplasty, and arthrodesis of painful joints may lessen pain and improve function. Skin-grafting may hasten healing after removal of the gouty deposits when granulation tissue appears. Minimal suturing of wounds is advisable in order to preserve blood supply and to allow escape of liquefied deposits when removal of the tophus is incomplete. Pressure dressings and splints minimize dead space, help prevent hematomas, and put the parts at rest so that healing may occur. Prolonged splinting is to be avoided as ankylosis may occur. Amputation of toes may be necessary, but every effort should be made to preserve the fingers. A definite plan of preoperative and postoperative medical management helps to prevent complications and acute attacks following surgery.

NEUROLOGY & PSYCHIATRY

Neurological Disorders Associated with Asian Influenza. B. McConkey and R. A. Daws. Lancet 2:15-17 (July 5) 1958 [London].

The authors observed, during October and November of 1957, 4 patients in whom neurological disorders followed a febrile illness suggestive of influenza. Neurological involvement followed 4 or 5 days after the onset of a febrile illness. That this illness was Asian influenza appears to have been established by the results of the complement fixation tests in 3 cases. The high infectivity of the disease is shown by its spread in the family of the first 2 patients, for the other 4 members of this family had febrile illnesses and blood from 3 showed evidence of recent infection with influenza A (Asian). The daughter whose blood was examined also had involvement of the nervous system following her attack of influenza. She complained of severe headache and became drowsy, but recovery was uneventful. The fourth patient had an illness very like lymphocytic choriomeningitis, and was the only one in whom a cell response developed in the cerebrospinal fluid. The illness followed what was thought to be Asian influenza, and although the results of the complement fixation tests do not altogether exclude influenza C and mumps, the authors believe that the neurological disorder in this case, as in the others, followed Asian influenza. Three of the patients were very ill and caused some anxiety, but when recovery began it was rapid. In 2 patients the electroencephalogram, although grossly abnormal at the height of the illness, soon reverted to normal. The handwriting of 1 of the patients has deteriorated, and this is probably evidence that recovery has not been as complete as was at first thought.

A Clinical Evaluation of Acetazolamide (Diamox) in the Treatment of Epilepsy in Children. J. Holowach and D. L. Thurston. J. Pediat. 53:160-171 (Aug.) 1958 [St. Louis].

Although first introduced as a diuretic, Diamox (acetazolamide) subsequently was found helpful in the control of epilepsy. The authors used Diamox in 56 patients from the outpatient clinic of St. Louis Children's Hospital. These patients had not been completely controlled with their previous medications, which ran the gamut of available anticonvulsants. Their ages ranged from 3 months to 16 years, and the duration of their attacks had been from 2½ months to 13 years. Of the 56 patients, only 6 had more than 1 type of seizure at the onset of Diamox therapy. The dosage of Diamox was empirical in all cases, ranging from 250 to 1,000 mg. per day. Diamox dosage for epilepsy has variously been reported from 8 to 36 mg. per kilogram of body weight daily, but there is evidence that the drug can be effective in doses of less than 4 mg. per kilogram of body weight per day.

Seizures were completely controlled in 35 of the 56 patients, were improved well over 50% in 9 patients, and persisted unchanged in 12 patients. The anticonvulsant action of Diamox is prompt. Results are often evident within hours. For this reason, small doses, if ineffective, should be increased quickly to tolerance. The maximum recommended dose is 1,000 mg. per day. The usefulness of Diamox in the treatment of epilepsy is limited by the tendency for development of tolerance. The mechanism of this resistance is unknown. Under these circumstances, resuming Diamox treatment after an interval of time may again be beneficial. Despite the tendency for development of tolerance, the prompt control of many cases of epilepsy of diverse types with few side-effects makes Diamox a valuable drug in the clinical management of epilepsy.

Is Multiple Sclerosis a Spirochetosis? Additional Factual Material. H. C. R. Simons. Deutsche med. Wchnschr. 83:1196-1200 (July 11) 1958 (In German) [Stuttgart, Germany].

Simons cites a preliminary report he published in 1957 to the effect that he in Bern, Switzerland, and G. Steiner of Detroit in 1954 had independently observed (not then published) living spirochetes in the cerebrospinal fluid after acute exacerbations of multiple sclerosis. The author had also reported the first successful visualization of Steiner's Spirochaeta myelophthora in the stained cerebrospinal fluid of a patient with tetroplegic multiple sclerosis. In this paper he presents additional factual material on the question of multiple sclerosis as a spirochetosis. He mentions Ichelson's report on obtaining Sp. myelophthora in pure culture from the cerebrospinal fluid of a high percentage (78%) of patients with neurologically proved multiple sclerosis. Ichelson recently succeeded in developing a skin reaction in which spirochetes cultured from multiple sclerosis patients served as antigen, and with the aid of L. Roach he was able to develop a complement fixation test.

Histories and autopsy reports are presented with histological studies on the central nervous system of several patients with multiple sclerosis. In the histological studies, the author gives particular attention to the use of disintegration procedures either with the thedan-blue-potassium chlorate method or with the simplified and improved thedan-blue-ammonia method. He feels that the findings presented greatly favor the role of spirochetes in the etiology of multiple sclerosis. Whenever he showed slides of the spirochetes discovered in multiple sclerosis lesions to bacteriologists, pathologists, or neuropathologists, their spirochetal nature was never questioned. He discusses factors that speak for the pathogenicity of multiple sclerosis spirochetes.

Reserpine in Advanced Psychoses. L. O. Norman. Nord. med. 59:798-802 (June 12) 1958 (In Swedish) [Stockholm].

Oral reserpine therapy was applied in 145 women patients with advanced chronic endogenous psychosis, including 136 with schizophrenia. Most of the patients had been in a hospital for many years. In 23 cases prefrontal leukotomy had previously been done, and insulin coma treatment had been given in 60 cases during acute exacerbations. In 102 patients there was more or less marked psychic improvement during the treatment. In a number of cases reserpine had only a generally tranquilizing effect with reduction of motor hyperactivity and a lessening of aggressiveness, impulsivity, and negativism, making care easier for the personnel. Often there was even a definite decrease in the schizophrenic autivism. The initial reserpine dosage was as a rule 9 mg. daily in 3 doses, usually continued for several weeks until favorable effect was noted or by-effects set in, when the dosage was decreased to 2-6 mg. daily and later possibly further. In the author's opinion a significant improvement may be looked for in ⅓ of the patients and the possibility of their being able to leave the hospital may be expected in only about 1/10 of the patients. Because of the by-effects the treatment, at least at first, should be carried out in a hospital where there is constant medical control; under such circumstances the complications which reserpine may cause seldom involve more serious risks for the patient. A favorable effect was seen more often in catatonic and paranoid schizophrenics, in patients with intact or fairly intact reactability, and in patients who had had previous remissions. Unfavorable reactions were seen in about 15% of the cases. In 52 cases the optimal effect was attained within 3 weeks after the start of treatment, in 36, after 3-6 weeks, and in 12, later. Of the 14 patients able to leave the hospital after reserpine treatment only 2 on follow-up after half a year had again required hospital care, 8 could be cared for at home, and 4 were regarded as cured.

Active Immunization Against Poliomyelitis with a Vaccine of Attenuated Virus: I. Theoretic Foundation and Selection of Strains. J. D. Verlinde. Nederl. tijdschr. geneesk. 102:1138-1143 (June 14) 1958 (In Dutch) [Amsterdam].

Sabin's vaccine is being tried in the Netherlands on small groups of patients. This vaccine, prepared from selected attenuated (non-neurotropic) types of poliomyelitis virus, is administered by mouth. The theoretic foundation of vaccination with the living virus is the expectation that after oral administration it multiplies in the alimentary canal and causes an immunizing intestinal infection. Fortunately, enterotropy and neurotropy are separated. It is of practical importance that when types 1, 2, and 3 of poliomyelitis virus are administered simultaneously, interference may result in that the dominating type 2 virus often interferes with the multiplication of type 3 virus, so that there is no immunization against type 3. Thus it may be desirable that the 3 types be administered separately. If administered at intervals of 3 weeks each type will have an opportunity to multiply.

Some partially attenuated strains may cause viremia. This characteristic must be regarded as undesirable, since it may lead to infection of the central nervous system. As regards the formation of neutralizing antibodies there is no essential difference between active immunization with Salk vaccine, treatment with living attenuated virus, and natural infection. Since the ingested virus is excreted in the stools, it is of the utmost importance, not only for the vaccinated individual but also for his environment, that the virus should be non-paralytogenic for man, and as homogeneous and stable as possible. The most reliable method of selecting suitable strains is the use of single plaque progeny as suggested by Sabin.

Active Immunization Against Poliomyelitis with Attentuated Virus: II. First Report on the Use of Sabin Vaccine in the Netherlands. J. D. Verlinde, J. B. Wilterdink, B. Hofman and A. Kret. Nederl. tijdschr. geneesk. 102:1144-1149 (June 14) 1958 (In Dutch) [Amsterdam].

The authors describe the result of vaccination experiments with Sabin's method on 40 volunteers in the Netherlands. These volunteers, including children and adults, with and without homotypic antibodies, were fed Sabin's highly attenuated strains of the 3 types of poliomyelitis virus. Single plaque progeny of each type was administered at 3-week intervals (first type 1, then type 3, and finally type 2), the dose being 0.1 ml. of a 10^{-1} dilution of tissue culture fluid in Hanks' solution in a teaspoonful of jam or milk. With only few exceptions, an asymptomatic alimentary infection and development of antibody were demonstrated in persons without pre-existing, high-avidity homotypic antibodies. In 1 person neither alimentary infection nor antibodies developed, even after repeated feeding with a double dose, presumably because of a natural resistance of the alimentary tract. The duration of the alimentary infection (virus excretion) varied from 7 to 44 days. In persons with preexisting high avidity homotypic antibody, alimentary infection was rare, and, if present, of shorter duration, while less virus was excreted per gram of stool than by nonimmune persons. Yet approximately 50% of all vaccinated persons showed a rise of antibody titer.

Thirty-nine strains (14 of type 1, 6 of type 2, and 19 of type 3), which were isolated from the stools of 21 vaccinated subjects were tested for neurotropism by intraspinal and intracerebral inoculation of Cynomolgus monkeys. None of the type 1 and type 2 strains showed any increase of neurotropism, but a slightly increased neurotropism was seen in 3 type 3 strains isolated from the stools of 2 persons. This increase was so slight that only very high doses proved to be paralytogenic on intracerebral inoculation. It is of the utmost importance that this increased neurotropism was demonstrable only in strains isolated 15, 16, and 21 days after feeding, whereas strains of the same type isolated from the same individual either earlier or later did not show any increase of neurotropism. This indicates that the alimentary tract does not selectively favor the development of neurotropic virus particles. So far there seems to be no reason to assume that this method of vaccination might lead to the circulation of virus with a high neurotropic activity.

Intracranial Venous Thrombosis in the Puerperium. G. Dalle Ore and R. Ruberti. Policlinico (sez.prat.). 65:894-903 (June 9) 1958 (In Italian) [Rome].

The author reports on 4 patients with intracranial venous thrombosis in the puerperium. One woman, a tertigravida aged 35, developed intermittent convulsive seizures followed by coma 7 days after delivery. The comatose state persisted for 2 days and was followed by gradual improvement and complete recovery in one week. A woman aged 32 complained of headache in the left frontotemporal region 2 days before the delivery. Pain gradually increased and on the 9th day after delivery difficulty in speech, convulsive seizures, hemiparesis, and right-sided hemiplegia developed successively. The following day clonic seizures involving the left side of her limbs developed. There were traces of blood in the cerebro-spinal fluid. The critical state persisted for 3 days, after which a slow improvement followed, and the patient was discharged on the 20th hospital day. Treatment consisted of administration of heparin, anticonvulsants, hypodermoclysis, and antibiotics. On discharge she was able to move the limbs on the right side and to speak slowly. The patient died suddenly of pulmonary embolism 10 days after the discharge. She was the only patient in this series who succeeded in overcoming the critical stage of the disease despite the presence of grave symptoms associated with a bilateral neurological syndrome.

The disease in 2 women, aged 23 and 33, respectively, was characterized by episodes of generalized convulsions, followed by a period of relative calmness, which may be attributed to the functioning of a collateral venous circulation. A subsequent sudden deterioration of the symptoms, marked by bilateral loss of neurological responses terminated in the death of both patients. The main differentiating feature of the intracranial venous thrombosis in the puerperium from the incidence of acute vascular disorders of arterial origin is the gradual development of the paralysis within a few hours, which under favorable circumstances subsides relatively rapidly and thoroughly. Cerebral angiography has proved to be the most useful diagnostic aid for intracranial venous thrombosis in the puerperium in this group of patients.

GYNECOLOGY & OBSTETRICS

Nystatin in the Office Treatment of Vaginal Moniliasis. L. J. Caruso. New York J. Med. 58:1688-1690 (May 15) 1958 [New York].

The author believes that in this antibiotic era leukorrhea with pruritus is more likely to be caused by monilial (Candida albicans) vaginitis than by trichomonal vaginitis. The increase in monilial infection seems to be due not to an enhanced virulence of C. albicans but rather to the fact that antibiotics often eliminate a large segment of intestinal saprophytic bacteria which appear to have a suppressive effect on the growth of Candida organisms. Furthermore, corticosteroid therapy seems to be accompanied by conditions favorable for the development of moniliasis. There may also be other, as yet unrecognized, factors related to the increase of clinical moniliasis.

This report is concerned with the use of nystatin vaginal tablets in 26 women in whom vaginal moniliasis had been demonstrated by laboratory tests. Treatment consisted solely of the insertion of 1 nystatin vaginal tablet on retiring. Clinical and mycologic cure was obtained in 24 of these 26 patients. Twenty-one of the 26 patients were cured (negative culture and asymptomatic) after the initial course of intravaginal therapy with 1 nystatin tablet each day for 14 days. The remaining 5 patients were improved but still showed positive growth on reculture. A second course of nystatin for 7 days resulted in a cure in 3 patients and the persistence of moniliasis in 2. Reinfection from the husband in these 2 patients was not ruled out, but failure to use the nystatin vaginal tablets according to instructions was felt to be the major cause of unsatisfactory results in these subjects.

PEDIATRICS

Pituitary Dwarfism: Diagnosis and Treatment. M. M. Martin and L. Wilkins J. Clin. Endocrinol. 18:679-693 (July) 1958 [Springfield, Ill.].

The authors report on 6 female and 20 male patients with pituitary infantilism who were followed past the age of puberty. Five female and 2 male patients had a neoplasm in the region of the sella turcica and 1 female and 18 male patients had idiopathic hypopituitarism. The time at which growth retardation became manifest varied but tended to be after the age of 3 years and showed itself earlier in the patients with idiopathic hypopituitarism than in those with tumor. The 26 patients showed permanent sexual infantilism and considerable stunting of growth with a mean lag in height age of 5.8 years. Function studies of target glands controlled by the pituitary indicated, apart from growth hormone and gonadotropin deficiency, impairment of thyroid and/or adrenocortical activity in 20 (75%) of the 26 patients as judged by serum cholesterol and protein-bound iodine levels, water diuresis, insulin sensitivity and 17-hydroxycorticoid excretion. It is therefore concluded that, when lack of either thyrotropin or adrenocorticotropin may be inferred from hypofunction of the target organs in a dwarfed child, the diagnosis of hypopituitarism can be strongly suspected without awaiting failure of sexual maturation. Psychological evaluation did not indicate any dependent relationship between hypopituitarism and intelligence quotient, but a dependent relationship to personality development, i. e., personality reflecting the problems concomitant with small stature.

Thirteen patients were treated with thyroid and 4 were given in addition a trial treatment with cortisone administered orally in daily doses of 25 mg. Administration of these drugs was of no benefit in the absence of conclusive evidence that these hormones were deficient. Even when the laboratory data indicated their use, the results, though subjectively encouraging, were objectively disappointing. Sex hormone substitution therapy was given to all the patients once it became obvious that spontaneous puberty was not to be expected. Most boys were given testosterone, either as long-acting testosterone cyclopentylpropionate or testosterone enanthate, once every 3 to 4 weeks in doses of 200 to 400 mg. Androgen therapy resulted in a growth spurt with gain in weight, marked broadening of the frame, and muscular development. The degree of virilization achieved in the patients was considerably below normal. The female patients were treated with androgens as well as estrogens. The administration of methyltestosterone in doses of 10 to 20 mg. daily, in addition to that of stilbestrol in doses of 1 mg. daily resulted in a near-normal growth of pubic hair and a spurt of growth without producing virilization. After 6 to 9 months of combined androgen and estrogen therapy, when development of the breasts, nipples, labia and vagina, estrinization of the vagina, and growth of the uterus had occurred, periodic therapy was instituted unless bleeding had taken place previously. With this treatment, physical maturation was more complete than in the case of the male patients. The improvement in morale and the social and psychological adjustment achieved by these female patients appeared to be better than that of their male counterparts. Early substitution therapy with sex hormones is urged, although not before the usual age of puberty, once the diagnosis of hypopituitarism has been firmly established and there is reasonable certainty that the case is not one of constitutionally delayed growth and adolescence. By relatively early treatment these children may be saved considerable psychological difficulty and may be helped greatly in their social adjustment.

Intracranial Calcification Following Tuberculous Meningitis in Children. J. Lorber. Am. Rev. Tuberc. 78:38-61 (July) 1958 [New York].

Routine serial roentgenograms of the skull were taken in 130 children who recovered from tuberculous meningitis and were followed for 2 to 10 years. Ten children died 21 months to 6 years after the onset of meningitis and 120 were alive at the time of the author's report. All of the 130 children received streptomycin by intrathecal route for various periods. Forty-two patients were treated with streptomycin as the only antimicrobic drug, 40 received aminosalicylic acid in addition, and the last 48 received isoniazid, streptomycin, and aminosalicylic acid. Fifteen children were given tuberculin intrathecally and 6 received streptokinase intrathecally as adjuvants. Pathological intracranial calcification was revealed by the roentgenograms of the skull during life in 63 children (48.4%). In 2 others who died, intracranial calcification and even ossification were observed at autopsy. In most children the calcification became detectable 2 to 3 years after the onset of the disease, but in some it was not detectable for 5 years.

The calcification occurred in 2 main sites: (1) the basal meninges and (2) within the brain substance. Calcification in the basal meninges was by far the more common and was seen in 49 patients (37%). In most patients the meningeal calcification was in the vicinity of the sella turcica, usually above the anterior or posterior clinoids or extending further back. It consisted of a single lesion in 9 patients, but in most of the other patients several smaller lesions formed clusters of calcification either as a solitary plaque, or more commonly as an irregular, broken, branching plaque. Sometimes the plaques formed a ring-like shadow just above the posterior clinoid process. Their situation closely corresponded to that of the cisterna chiasmatica. Much less commonly the exudate calcified in the meningeal spaces of the Sylvian fissure.

Thirty-three of the 130 patients were in the early stage of the disease on admission, 79 had intermediate disease, and 18 had advanced disease; meningeal calcification occurred in 7 (21%) of the 33 patients, in 32 (40%) of the 79, and in 10 (55%) of the 18 patients. Thus the incidence of meningeal calcification increased progressively in relation to the stage of the disease on admission. There was no appreciable difference in the incidence of calcification between those treated with streptomycin alone or with streptomycin combined with aminosalicylic acid, but the incidence of calcification was somewhat less in those treated with isoniazid and streptomycin. The use of adjuvants, intrathecally administered tuberculin and streptokinase, also reduced the incidence of meningeal calcification in selected groups. Intracerebral calcification was seen in 17 children (13%). The incidence was independent of the stage of the disease on admission and of the method of treatment.

The incidence of calcification was higher among children with neurological sequelae than in those who did not have such sequelae; 13 (62%) of 21 children with neurological sequelae had some form of intracranial calcification as compared with 50 (46%) of the 109 children without such sequelae, but the differences were not significant. Intracranial calcified lesions may harbor living tubercle bacilli. All 6 children with late recurrences of the disease had intracranial calcification. It is considered likely that tuberculous meningitis is becoming the most common cause of intracranial calcifications in children.

Frequency of Erythroblastosis. S. L. Leikin, J. J. Rheingold and J. G. Sites. Pediatrics 22:65-71 (July) 1958 [New York].

Blood from 1,125 sets of mothers and infants, 95% of whom were Negroes, was typed and grouped. The blood from mother and infant was found to be incompatible in 230 instances (20.4%). Twelve infants were designated as having ABO hemolytic disease, the diagnostic criteria for which is (1) an abnormal concentration of bilirubin in the cord blood and/or a marked increase in the serum in the subsequent neonatal period, and (2) an elevated reticulocyte or normoblast count and increased microcytosis, spherocytosis, and polychromasia. Jaundice was the first clinical sign appearing in 8 of the patients, and was noted as early as 5 hours and as late as 54 hours. Spleen and liver enlargement was absent in all of the infants, 2 of whom were premature. In only 2 cases were the mothers primigravida. None of the infants had signs of neurological disease during hospitalization or at follow-up study at 1 year of age. The Witebsky slide test appears to be a valuable adjunct in the diagnosis of ABO erythroblastosis.

Therapy of Hodgkin's Disease (Malignant Lymphogranulomatosis). C. Moschidis, K. Kiosoglou and F. Maouni. Ann. paediat. 190:333-341 (June) 1958 (In German) [Basel, Switzerland].

The authors report observations on 35 patients with Hodgkin's disease whom they treated during the decade 1947-1956 at the Children's Clinic of the University of Athens, Greece. The patients ranged in age between 3 and 14 years, 21 being less and 14 more than 8 years old. There were 25 boys and 10 girls. Twenty-three of the children were hospitalized once; the remaining 12 were hospitalized several times for the treatment of Hodgkin's disease. The authors give special attention to 10 patients who were treated with the nitrogen mustard (methyl-bis-β-chlorethyl-amino hydrochloride) also referred to as Dichloren. This drug was given by intravenous injection daily or on alternate days to children weighing less than 20 kg. in doses of 1 mg., and to those weighing more than 20 kg. in doses of 1.5 to 2 mg. until they had received a total dose of from 0.5 to 1 mg. per kilogram of body weight. During the subsequent maintenance therapy the children were given 1 or 2 mg. of the drug at 15-day intervals. This therapy usually induced regression of the disease process for 3 months, and occasionally a period of improvement lasted as long as 15 months. The first series of treatments always produced favorable effects, whereas the later series of injections were followed by shorter periods of improvement.

The authors feel that satisfactory results were obtained in the 10 patients. They found that the temperature generally falls and becomes normal within a week. The general condition improves, and the swelling of lymph nodes and the spleen usually subsides in the course of 15 days. The intervals between successive recurrences range from 3 to 15 months. Cortisone was found active in recurrences of 5 patients particularly when given together with antibiotics. Blood transfusions were given in the presence of severe anemia (hemoglobin level of less than 8 Gm. per 100 cc.). The nitrogen mustard (Dichloren) remained without effect during the third and fourth recurrences in 2 of the patients and in these irradiation therapy was carried out. Two other patients died during the third recurrence. The remaining 6 patients are alive and are in a good general condition. They are being kept under observation and are receiving maintenance therapy with nitrogen mustard. The development of leukopenia (leukocyte count less than 3,000 per cubic millimeter) and the development of anemia necessitates the interruption of the nitrogen mustard administration and requires blood transfusions and treatment with cortisone or antibiotics. Occasionally irradiation therapy will prove helpful in connection with chemotherapy. As regards the use of TEM (triethylene melamine) the authors feel that this drug has no advantages over the nitrogen mustard; in fact, it is less desirable because of its unfavorable secondary effects on the hematopoietic organs.

Acute Virus Infections of the Lower Respiratory Tract in Children and the Stevens-Johnson Syndrome. J. F. M. Hölscher. Nederl. tijdschr. geneesk. 102:1025-1029 (May 31) 1958 (In Dutch) [Amsterdam].

Virus pneumonia or "primary atypical pneumonia" does not have a uniform symptomatology. Virus diseases of the respiratory tract have been differentiated on the basis of serologic tests into the following subgroups: (1) primary atypical virus pneumonia with increased titer (higher than 64) for cold agglutinins; (2) atypical virus pneumonia with normal cold agglutinin titer (lower than 64) (this type includes the adenovirus group [APC-types 4 to 7]); (3) ornithosis and psittacosis, in which the Wassermann reaction may be positive, and the cold agglutinin titer is usually increased. In addition to these forms there are the forms that complicate such virus diseases as measles and influenza. The author presents observations on 14 children with virus pneumonia, in all of whom the cold agglutinin titer was higher than 64. This type of virus disease shows no complement fixation test to any of the known viruses. That it was a virus disease was proved by the fact that filtered tracheal irrigation fluid from the patients produced virus pneumonia in volunteers.

In 2 of the 14 children the virus pneumonia was complicated by the Stevens-Johnson syndrome, which is a combination of erythema exudativum multiforme with stomatitis and conjunctivitis, sometimes terminating in keratitis or panophthalmia; other authors noted in addition balantitis, vulvitis, urethritis, otitis media, laryngitis, bronchitis, and bronchopneumonia. The syndrome has been referred to as ectodermosis erosiva pluriorificialis, and it has been connected also with the names of Fiessinger-Baader, Rendu-Riessinger, and Behçet. After presenting the histories of the 2 children in whom the virus pneumonia was complicated by ectodermosis erosiva pluriorificialis the authors point out that it has been suggested that the 2 conditions have the same etiology, but in 1 of their 2 patients they gained the impression that a double infection existed, because the pneumonia rapidly responded to antibiotic therapy whereas the skin and mucosal lesions failed to react. Furthermore, it has been suggested recently that the Stevens-Johnson syndrome is caused by an adenovirus, which would suggest a double virus infection in the patients in whom virus pneumonia is complicated by this syndrome. A cough was observed in all but 1 of the 14 patients with virus pneumonia, elevation of the temperature in 11, and malaise, anorexia, and vomiting each were observed in a number of the children. Percussion revealed no abnormalities in 8 of the patients, but auscultation disclosed crepitating rhonchi in 13 patients. In 6 of the patients with physical signs of pneumonia no signs of infiltration could be detected roentgenologically. Whereas cold agglutinin titers were above normal in all 14 children, the Wassermann reaction was always negative.

Evolution of Leukemia in Children in the Course of Treatment. J. Chaptal, R. Jean, P. Izaron and others. Rev. españ. pediat. 14:161-178 (March-April) 1958 (In Spanish) [Saragossa].

The modern treatment of leukemia in children by adrenal hormones, drugs antagonistic to folic acid, and especially by 6-mercaptopurine changes the course of the disease in some patients. A total, *clinical, medullary, and hematological remission* of long duration occurs, in the course of which new lesions of lymphoblastic infiltration appear in the viscera and in the central nervous system. The visceral and neurological lesions may appear with or without relation to a recurrence of the disease. Forty children with leukemia were treated at the pediatric clinic of the Faculty of Medicine of Montpellier with cortisone and 6-mercaptopurine or aminopterine. Fresh lesions were located in the brain and meninges in 4 patients, in the testis in 3, in the mediastinum in 3, in the lungs in 3, and in the kidney in 1 patient. The cerebromeningeal lesions were the most frequent. They produced various syndromes such as: intracraneal hypertension with edema of the fundus of the eye, hypothalamic, and cerebellar symptoms, convulsions, mental disorders, and disorders of speech. The testicular lesions were bilateral in 1 case and unilateral in 2. The mediastinal lesions were unilateral in 2 patients and bilateral in 1. The pulmonary lesions were of the type of miliary tuberculosis or of a network pattern. In the patients with pulmonary lesions it was observed that the discontinuation of the treatment was followed by fever, which disappeared on the resumption of the treatment. Renal lesions occurred in only 1 patient. They were bilateral in the form of large lumbo-aortic tumors with hematuria appearing shortly before death. Mediastinal, pulmonary, and renal lesions were visualized roentgenologically. In none of these cases was an autopsy done. The authors conclude that leukemia is a disseminated disease. The lesions in the hemopoietic organs improve with the administration of antileukemic drugs. The remissions elicited by the treatment give the patient a period of survival during which the lesions in the extrahemopoietic organs, which are resistant to the treatment, follow an independent evolution. The appearance of neurological symptoms, roentgenologic signs of pulmonary or mediastinal infiltration of the testicular tumors in the course of a remission following antileukemic treatment are indications of the presence of visceral or neurological leukemia which call for antileukemic treatment in high doses of the usual drugs. The intraspinal route should be used in lesions of the nervous system.

UROLOGY

Bilateral Complete Ureteral Duplication. N. B. Powell and E. B. Powell. J. Internat. Coll. Surgeons 30:36-45 (July) 1958 [Chicago].

When complete ureteral duplication is present bilaterally there will be 4 kidneys, 4 ureters, and 4 orifices, the 2 major orifices being located in the normal position in the trigone draining the major or lower kidney. The minor ureter which emerges from the minor or superior kidney crosses the major ureter and usually enters the bladder medial and distal to the major orifice, although it may enter the posterior urethra, the ejaculatory duct of the male, and the cervix or vagina of the female. Ureteral anomalies predispose to urinary stasis, infection, and calculous disease. When anomalous ureteral and/or renal conditions are suspected an early accurate diagnosis can be made by retrograde pyelographic, cystographic, bulb ureteropyelographic investigation, and other specialized techniques available to urologists. Patients with ureteral duplication may have pain, either dull or sharp and intermittent or constant, which is located in the lower part of the abdomen, the flank, or the costovertebral area. In the event of stricture of the ureter, the ureteropyelogram will show the dilatation proximally and possibly the actual stricture. The completely duplicated ureter is usually constricted at the site of normal anatomic narrowing, while the incompletely duplicated ureter is frequently constricted at the point of juncture. Five new cases of bilateral complete ureteral duplication occurring in female patients are reported, nonobstructing stones being present in 1 case in each of the 4 intrarenal pelves.

Renal Papillary Necrosis: A Clinical Study of 34 Cases. N. Hultengren. Acta chir. scandinav. 155: 89-99 (No. 1-2) 1958 (In English) [Stockholm].

Thirty-four patients were hospitalized for renal papillary necrosis in the Urological Unit of Karolinska Sjukhuset in Stockholm, Sweden, from 1953 to 1957. All but 2 of the patients were women and only 2 (both women) had diabetes. No patient had chronic obstruction of the urinary tract. In 32 patients the renal papillary necrosis was classed as chronic. [In this connection the author points out that 129 of 211 cases of renal papillary necrosis reported before 1955 were accompanied by diabetes and 76 by urinary obstruction.] Five of the 34 patients died. Autopsy was performed in 3 cases. The diagnosis of renal papillary necrosis was made before admission to Karolinska Sjukhuset in 2 patients. The others were admitted with the diagnosis of recurrent cystopyelitis. The symptoms in most cases were the classical, pain and hematuria. Recurrent dysuria, pollakiuria, and pyrexia were also complained of. The diagnosis was made ante mortem in all patients but 1; in 27 the diagnostic method was excretion urography and in 3 pyelography. In 3 patients renal papillary necrosis was not diagnosed until after operation. The preoperative diagnoses were pyelonephritic shrunken kidney, "silent kidney," and lithiasis of the upper renal pole. In this last case renal papillary necrosis had been suspected from the roentgenograms.

Perhaps the most interesting finding was that headache or migraine was present in 29 of 31 patients for long periods before the renal symptoms appeared. Association between the headache and the renal disease appears probable. "Migraine equivalents" in the form of pain in the chest, abdomen, and extremities have been described, and it is therefore not inconceivable that changes in the renal circulation may also arise. Hypertension may be excluded as the cause of the headache, as the hypertension began late in the history of these patients and usually after the onset of the renal disease. Most of the patients had ingested large amounts of analgetics for the relief of headache before the renal disease appeared, particularly agents containing Phenacetin. However, in cases of poisoning with this drug the renal lesions were of interstitial nephritic type. Treatment was directed against urinary infection. Stones and shed papillae causing obstruction were surgically removed when this was indicated, and blood transfusions were given for the anemia which was present in almost all of the patients. These measures retarded the course of the disease, but in no case did the lesions completely heal. While heminephrectomy or nephrectomy have been recommended by some for the treatment of unilateral renal papillary necrosis, the authors issue a stern warning against nephrectomy, since contralateral lesions may develop after a very short time.

Tantalum 182 in the Treatment of Bladder Tumours. G. Jönsson, B. Månsson and L. Röhl. Acta chir. scandinav. 115:111-119 (No. 1-2) 1958 (In English) [Stockholm].

Tumors of the bladder have been treated in the Urologic Unit of the Department of Surgery of the University of Lund, Sweden, by combined surgery and radiotherapy. External irradiation, because of several drawbacks, was replaced by implantation therapy in 1940. Electroresection or partial or total cystectomy were combined with implantation of radium needles in patients with bladder tumors treated between 1940 and 1955. Since May, 1955, the authors used radioactive tantalum (Ta^{182}) instead of radium needles. Ta^{182} is produced by neutron irradiation of Ta^{181}. It has a half-life of 111 days. The beta rays of the tantalum needles are filtered off with a surface layer of platinum. The tantalum wire itself has a diameter of 0.2 mm. The thickness of the covering platinum layer is 0.1 mm., so that the total diameter of the needle is 0.4 mm. The tantalum needles, which are 12.5 cm. long, generally have an activity of 12 to 13 mc. each when delivered from the reactor, corresponding to about 1 mc. Ta^{182} per linear centimeter. The needles can be used until the activity is reduced to about 5 mc. The treatment periods ranged from 3 days with a dose of 4,620 r to 15 days with 8,300 r. As a rule treatment was given for 5 to 8 days and the dose then was 5,500 to 6,500 r. Ta^{182} was used in 63 patients with bladder tumors.

Benign, large papilloma was present in 21 and solitary carcinoma in 42 patients. Ta^{182} was implanted intravesically in all cases, usually in combination with partial cystectomy. Malignancy was ascertained by cystoscopy, urography, urethrocystography, and bimanual palpation. Preoperative biopsy was seldom performed as the procedure involves risk of implantation metastases. There were no deaths attributable to surgery. The postoperative irradiation reactions in the bladder and the subjective reactions were brief and mild in the patients with benign papilloma. No recurrence appeared during follow-up in this group. For these reasons it is considered justifiable to perform such a radical operation as partial cystectomy plus implantation of Ta^{182} even in benign, large papillomas. The 10 late deaths (all in the cancer groups) almost all occurred in patients with perivesical extension of cancer at the time of operation. Partial cystectomy with Ta^{182} implantation should therefore be reserved for tumors which have not infiltrated through the bladder wall.

Management of the Undescended Testis. J. Brunet, R. R. De Mowbray and P. M. F. Bishop. Brit. M. J. 2:1367-1371 (June 14) 1958 [London].

The authors present a follow-up study of 209 patients with undescended testes, referring in particular to the prognosis regarding fertility. Age at the time of treatment varied between 5 and 20 years. Most of the patients were treated before puberty, but 3 received treatment at the age of 14, 2 of whom are sterile. The third patient had extracanalicular testes and spermatogenesis was preserved. Another patient treated at the age of 20 is married and has a child. The cases are classified according to the position of the testis: (1) canalicular, (2) extracanalicular, (3) retractile, superficial inguinal, and (5) impalpable. Patients in whom the spermatic cords were thought to be too short to allow normal testicular descent were treated with chorionic gonadotrophin. The total dose ranged from 260 to 40,000 I. U., with an average of approximately 12,000; the dose at each injection ranged from 100 to 1,500 units and was most commonly 500 units. The duration of treatment varied from 1 to 12 months with an average of 4 months. The ideal age for treatment is thought to be 9 or 10 years. Patients were treated surgically if there was evidence of mechanical obstruction to the descent of the testis or of deviation to the superficial inguinal pouch or to another ectopic position or if endocrine therapy had failed.

Results show that spontaneous descent occurred in 35 of the 209 patients, 20 of whom had retractile testes. In 110 of 193 patients descent occurred following treatment with chorionic gonadotrophin, which acts by lengthening the spermatic cord and cannot rectify a mechanical abnormality, whereby a testis has migrated into the wrong position. Descent occurred in 111 of 120 patients who received surgical treatment. A completely satisfactory result (normal position, size, and consistency) was obtained in 65%, i. e., 78 of 120 patients, of the surgically treated patients who were followed up. In 6 of 26 patients with impalpable testes complete descent occurred under the influence of chorionic gonadotrophin, while in 7 of 15 patients with impalpable testes, the testes were placed in the scrotum at operation.

The results of treatment with regard to subsequent androgenic development are excellent. In only 3 of 209 patients was there any gross degree of testicular deficiency. The result with regard to fertility of the unilateral cases show that 93%, i. e., 27 of 29 patients exhibited normal fertility, and 17 of 24 patients with bilateral undescended testes are fertile, evidence for the remaining 4 depending solely on the fact that the patient had achieved paternity. Of the 19 fertile patients in the group of the 24 with bilateral undescended testes 14 were treated with chorionic gonadotrophin alone while 5 were subsequently operated on. The remaining 5 patients were found to have a subnormal sperm count, 2 patients had complete aspermia and 3 had sperm counts less than 20 millions per milliliter and a motility of less than 1.5. There is no evidence that chorionic gonadotrophin in moderate dosage can cause permanent damage to the seminiferous tubules. Orchiopexy is the treatment of choice when there is a mechanical defect or when chorionic gonadotrophin therapy fails.

INDUSTRIAL MEDICINE

Cardiac Rehabilitation: A Survey of Cardiologists' Opinions. B. Williams, P. D. White, P. R. Lee and H. A. Rusk. Am. Heart J. 56:107-111 (July) 1958 [St. Louis].

As part of a national survey of cardiac rehabilitation, sponsored by the National Heart Institute, a questionnaire was sent to a number of the nation's leading cardiologists and internists who have had broad experience in cardiology, asking their definition of the term, their opinions as to how rehabilitation of the patient with cardiac disease is most effectively accomplished, as well as what future course should be taken in assuring the cardiac patient of his place as an effective member of society. The opinions of 36 of these physicians are analyzed in this paper. Most definitions stressed the restoration of the patients to a useful and happy life, within the limits of their physical capacities. Almost all agreed that a careful, sympathetic, and, particularly, an unhurried discussion with the patient regarding the nature of his heart disease is the first and most valuable procedure in cardiac rehabilitation. This should begin early in the course of the illness and should be continued during all subsequent interviews. The proper medical treatment and the importance of the elimination of fear regarding heart disease were stressed. After recovery the patient should have a trial at his usual occupation with as few modifications as possible. Consultation with persons trained in related fields, such as social service or vocational counseling, was thought to be helpful, but several doctors expressed disappointment with their experiences in such consultation. Certain customs and laws with respect to disability, compensation, and decision of unemployability by various industries require correction.

The group of patients with congenital heart disease was felt to hold the most promise of cardiac rehabilitation, because so many lesions are correctible or, at least, improvable by surgery. Rehabilitation of patients with rheumatic heart disease was thought to be largely dependent on the severity of the active rheumatic fever, degree of valvular deformity, and presence or absence of accompanying congestive failure. Great help has come from surgical correction of mitral stenosis. It was felt that most patients with hypertensive cardiovascular disease could carry on active, useful lives, particularly with the aid of modern drug therapy. It was emphasized that the majority of patients do recover from myocardial infarction to a sufficient degree to return to their previous work with little or no modification in their activities. In patients with cerebral vascular disease the best results were obtained from the help afforded by special rehabilitation centers and techniques. There was much enthusiasm for the great advances in treating patients who have had "strokes." Patients with neurocirculatory asthenia were thought to be the most difficult group of all to handle. Emphasis should be put on the longevity of individuals with neurocirculatory asthenia and the fact that they often "outgrow" some of their difficulty as they adjust themselves to their problems.

Chronic Silo Filler's Disease. H. W. Schell. Connecticut M. J. 22:546-552 (July) 1958 [New Haven, Conn.].

Silo filler's disease or silage gas poisoning has been observed in agricultural workers. A 64-year-old farmer was observed who in December, 1956, complained of progressive shortness of breath of 5 months' duration. In the middle of July he began to fill his silo with green grass hay. After each load of hay was placed in the silo, sodium metabisulfite was added as a preservative. In the late summer of 1956 drought conditions prevailed and environmental temperatures were high. Small amounts of hay were put into the silo frequently. The patient entered the silo about every second day and stayed from 1 to 20 minutes at a time from the middle of July until September. He noted repeatedly a "brownish" haze immediately over the silage. He developed a dry hacking cough after exposure to the gases. The cough and feeling of suffocation increased in severity. The cough became productive of whitish sputum. The sputum became more copious and yellow in color, and cough and dyspnea continued to increase. He was seen by his private physician who administered antibiotic therapy but there was no lessening of cough or of shortness of breath.

This case is thought to represent chronic silo filler's disease, caused by repeated inhalation of nitrogen dioxide, and which differs in its clinical course from previously described acute and subacute cases. Adrenal cortical steroid therapy was used later with apparent benefit. It is suggested that toxic oxides of nitrogen are formed over hay silage, as well as over corn silage, under conditions of drought and high temperature. Previously reported cases occurred in patients who were exposed to silo gases within about 1 week of the time that the silos were filled with corn. In 3 of the 8 reported cases, the patients described a yellow to brownish gas or haze immediately above the silage and in 5 cases an acrid, ammonia-like or "bleach-like" odor was noted. Cough and dyspnea were common symptoms. Patients who were not rendered unconscious, with death ensuing in a matter of hours, seemed to recover with a remarkable relief of symptoms, only to become acutely ill once again with a recurrence and intensification of symptoms several weeks after the initial exposure.

The case presented was unique in that it followed neither an acute fatal course nor a subacute "saddle-back" course. It is suggested that the course of the illness in this instance represents the development of a progressive pulmonary granulomatous process which was eventually halted and reversed by prednisone, leaving a faint fibrotic residual visible on the x-ray film. It has been suggested that repeated exposure to toxic silage gases might be a factor in the pulmonary interstitial fibrosis seen in farmers.

Studies on the Epidemiology of Furunculosis in Miners. A. C. Ruys, H. Beeuwkes, K. R. Koopmans and J. S. Mulder. Trop. & Geog. Med. 10:142-148 (June) 1958 (In English) [Amsterdam].

Furunculosis occurs more frequently in miners than in the average population and more in underground workers than in those who work on the surface. Various factors may account for this. Mining work may involve a lowering of resistance, by which the commensal staphylococci sooner exert a pathogenic effect than they would in other persons. The daily intensive cleansing necessary to remove the coal dust may be a factor in this lowering of the resistance. Certain virulent types of staphylococci may spread as the result of close contacts in common washrooms. Furthermore, attendance at dressing stations, where antibiotics are administered, might promote dissemination of resistant, aggressive strains. Phage typing having produced a possibility of studying these problems, the authors used this method on 753 Staphylococcus strains from furuncles in miners. Phage typing revealed very few differences in the distribution of strains over various types and groups in a number of mines and subsidiary industries; nor did the distribution differ from that among other groups of people.

Resistance to penicillin was observed in 23.1% of the strains from furuncles. The resistant strains belonged mostly to phage group 1. The penicillin resistant strains were distributed over the mines in about the same proportion as the sensitive strains. The noses were inspected for the presence of staphylcocci in 131 healthy miners, in 85 miners with furuncles, and in 129 family members of the latter. The results suggest that furunculosis in miners should not be attributed to increased circulation or particular aggressiveness of the staphylococci. The question remains whether the cause lies in the lowered resistance of the skin.

THERAPEUTICS

Experiences with E-39 in the Treatment of Advanced Malignant Neoplasms. A. Brunschwig. Cancer 11:765-768 (July-Aug.) 1958 [Philadelphia].

The compound 2,5 di-propyloxy-3,6-di-ethyleniminobenzoquinone (E-39) was administered intravenously to 40 patients with various forms of advanced cancer, a large percentage of which were ovarian in origin. There were positive responses in 2 of the 5 patients with advanced cancer of the colon, and 7 positive responses among the 13 patients with ovarian cancer. While no instance of complete regression of advanced cancer with rapid restitution of the individual to normal or near normal status was observed, evidence was forthcoming to the effect that E-39 was active in causing temporary restraint of growth and regression of malignant neoplasms in 13 of the 40 patients treated. The use of this preparation is not unattended with certain risk. Depression of the circulating leukocyte and platelet levels, with purpura in a few instances and gastrointestinal hemorrhage in 1 case, was observed.

Long-Term Treatment of Arthritis with Mepacrine and Chloroquine. F. Erlendsson. Ugesk. læger 120:793-799 (June 19) 1958 (In Danish) [Copenhagen].

The antimalarial compounds mepacrine and chloroquine have an antirheumatic effect which can be advantageously utilized in the treatment of rheumatic arthritis. In most of the 14 patients with rheumatoid arthritis treatment with these agents was started over 4 years ago. In 3 cases treatment was terminated for various reasons after less than a month; 1 patient was cured in 3 weeks; and in 1 case treatment was discontinued after 62 days because of a pruriginous exanthem, and in 1 case, after 162 days because of cardialgia. The addition of vitamin A has since proved useful in the treatment of cardialgic disturbances and seems able to support the favorable antirheumatic effect of the substances named. Eight patients reacted satisfactorily to the treatment. Of these 1 patient has moved away, 1 died from bronchopneumonia at the age of 82 after 37 months' treatment, and 1, treated for 44 months, is hospitalized because of a complicated fracture of the thigh. Treatment is being continued with good effect in 5 patients, with total time of treatment of up to 4 years and 2 months. In 2 patients with strongly active rheumatoid arthritis in an advanced stage, unsuccessfully treated with cortisone, remarkable improvement followed on continuous treatment with chloroquine or mepacrine for 2 and 2¾ years respectively.

Chloroquine Treatment of 20 Patients with Active Rheumatoid Arthritis. F. Erlendsson. Ugesk. læger 120:800-804 (June 19) 1958 (In Danish) [Copenhagen].

Chloroquine exerts a favorable effect in many cases of rheumatoid arthritis. The treatment is more easily carried out than sanocrysin treatment; is not, on individualized dosage, accompanied by more side-effects than gold treatment; and is less expensive than steroid treatment, to which it has in cases proved superior. Chloroquine should be tried when treatment with cortisone and prednisone does not avail. The patients should be under regular control, preferably by the same person, during the entire period of treatment. The latent time for the antirheumatic effect of chloroquine varies greatly; the effect, possibly accompanied by unpleasant side-effects, may in some cases appear after a few days' treatment, and in others is not seen till after up to 2 months' intensive medication. Ambulant treatment with chloroquine diphosphate for up to 2 years was given to 20 patients with active rheumatoid arthritis, with satisfactory results in 16. At the conclusion of the investigation 10 patients were under continued treatment, while 6 patients with up to 170 days' observation time maintained their improvement. Three patients treated unsuccessfully, 2 with cortisone and 1 patient with prednisone, improved under treatment with chloroquine. On the other hand, in 3 patients given chloroquine change to prednisone became necessary. One patient discontinued treatment with chloroquine because of sleeplessness during the treatment. Chloroquine is recommended for the treatment of rheumatoid arthritis, but the author cautions against stiff dosage and deficient control.

Allergic Reactions to Tranquilizing Drugs. L. E. Hollister. Ann. Int. Med. 49:17-29 (July) 1958 [Lancaster, Pa.]

Three classes of tranquilizing drugs, including the phenothiazine derivatives (notably chlorpromazine), the Rauwolfia alkaloids (notably reserpine), and the substituted propanediols or butanediols (notably meprobamate) have been widely used and allergic reactions to the first and third classes of these drugs have been of great importance. Sensitivity to chlorpromazine may be manifested by agranulocytosis, jaundice, dermatitis, and other minor reactions. Strong circumstantial evidence suggests that agranulocytosis from chlorpromazine is of immunological origin, though this contention remains to be proved. Chlorpromazine jaundice has been reproduced often enough by the challenge test to implicate drug allergy as the mechanism. Some cross-sensitivity may possibly exist between chlorpromazine and promazine, but it appears that it is uncommon and contingent on previous sensitization to chlorpromazine. Neither jaundice nor agranulocytosis has thus far been reported from proclorperazine and perphenazine, despite their increasing use. On the other hand, both agranulocytosis and jaundice have been reported from promazine and mepazine, as well as other phenothiazine derivatives not widely used. It appears that chlorination of the phenothiazine ring is not the critical determining factor in producing sensitivity. At present, it does seem that the introduction of the piperazine ring into the structure of these drugs increases the potency of these drugs (proclorperazine, perphenazine) and decreases their allergenic potential.

Reserpine barely qualifies as an allergen on the basis of the comparatively rare reports of untoward reactions. It does appear to have the potential of producing immunological thrombocytopenia. Aggravation of such allergic disorders as chronic urticaria, bronchial asthma, or atopic rhinitis might be expected from the parasympathomimetic action of the drug. Two case reports are presented which indicate that purpura may be produced by the drug.

Meprobamate sensitivity is manifested by fever, skin rashes, and constitutional signs, including vascular collapse. This sensitivity is peculiar in that it commonly is produced by the initial dose of the drug. The case of a 62-year-old man with schizophrenia is reported in whom an erythematous petechial rash associated with malaise and fever was observed after 2 doses of 400 mg. of meprobamate. No reactions occurred after the administration of a propanediol preparation, lacking the carbamic acid groups. This implies that the carbamate groups of the meprobamate molecule determine this type of sensitivity.

Diffuse Bacterial Peritonitis in Childhood and Intraperitoneal Therapy with Oxytetracycline and Tetracycline. F. Soave. Minerva chir. 13:573-576 (May 31) 1958 (In Italian) [Turin, Italy].

Fifty-seven children, aged 5 to 12 years, were treated with oxytetracycline and tetracycline administered intraperitoneally postoperatively. Diffuse purulent peritonitis, a result of perforation in acute appendicitis, was present in 30 children, acute appendicitis with abscess and circumscribed peritonitis in 17, and appendicitis accompanied by serofibrinous effusion in 10. Oxytetracycline therapy was used in 32 patients and tetracycline in 25 patients. The drug was instilled into the peritoneal cavity in a dose of 1 Gm. diluted in 20 cc. of cold physiological solution before the closure of the abdomen. The mixture of the instilled solution and pus was then drained. Subsequently the 2 antibiotics were instilled intraperitoneally in a daily dose of 1 Gm. through a small rubber catheter, which was introduced into the peritoneal cavity at the time of operation and kept in position for 72 hours. In few instances it was necessary to leave the catheter in position for 7 days. Each patient received a total dose of 3 Gm. of either drug, supplemented by 1 Gm. of vitamin C a day.

Oxytetracycline brought about a prompt response in 30 patients (96%), and tetracycline did likewise in 22 (89%). General state of health improved after 36 hours of chemotherapy. Fever subsided more quickly with oxytetracycline than with tetracycline. Supplementary administration of tetracycline by mouth restored the body temperature to normal whenever the intraperitoneal administration of the drugs alone was ineffective during the first 72 hours of chemotherapy. The drugs did not produce any toxic effect on the exposed tissue. Three general and 2 local complications attributable to the chemotherapy developed.

Reactions to Benzathine Penicillin. R. B. McFarland. New England J. Med. 259:62-65 (July 10) 1958 [Boston].

The author describes the reactions to benzathine penicillin G in 12,858 male Navy recruits who received this drug in the course of a mass prophylaxis program against streptococcic infection carried out at the United States Naval Training Center at Bainbridge, Md., during the winter and spring of 1956 to 1957. Recruits suspected of being allergic to penicillin were excluded. Two dosages of penicillin, 600,000 units and 1,200,000 units, were used. Reactions ranged all the way from mild urticaria, lasting 1 or 2 days, to the full picture of serum sickness, lasting several weeks. No reaction phenomena not previously described for penicillin were observed. A reaction rate of 1.3% (175 patients) was observed in this study of the 12,858 naval recruits receiving a single injection of this drug. Twenty-one per cent of the reactions were of minor severity; 67% were not severe enough to cause loss of time from work; but 8%, i. e., 1 of 1000 men injected had a reaction serious enough to require cortisone therapy. The reactions were of the delayed type and usually occurred 8 to 15 days after injection. Over 25% of the men with more severe reactions had intermittent symptoms more than 30 days after injection. There was no correlation of the interval between injection and reaction and the length or severity of the reaction.

Treatment early in the study consisted of oral administration of antihistamines, tripelennamine or diphenhydramine, and calamine lotion applied for itching. Later a controlled study was attempted with the use of promethazine and a placebo. Light duty or bed rest was prescribed when necessary. Cortisone was added only in the patients with more severe reactions, who failed to respond to bed rest. The effects of this therapy on the reactions may be summarized as follows: cortisone was effective in masking the symptoms; relapses were frequent and occurred after placebo or antihistamine therapy as well as after cortisone treatment. However, relapses did not occur in patients with urticaria as the only manifestation of their reaction. Rapid improvement and recovery occurred frequently in the group treated with placebos just as in the group treated with promethazine. When the number of days for which the patients in the 2 groups were reported sick were compared, it became evident that there might be a slight advantage to the promethazine therapy over the placebo. Antihistamine therapy did not have any effect in preventing relapses, but it appears to have a slight effect in diminishing the length of illness caused by the allergy to benzathine penicillin.

PATHOLOGY

The Hemophilic Syndrome: A Review of 27 Cases. J. W. Thomas, D. M. Whitelaw and W. H. Perry. Canad. M. A. J. 79:100-102 (July 15) 1958 [Toronto, Canada].

The authors examined 24 patients with antihemophilic globulin defect (A. H. G.) and 3 patients with Christmas factor defect in Vancouver between 1954 and 1957 in order to evaluate and correlate the results of the thromboplastin generation test and the new methods of assaying the A. H. G. defect with the clinical picture in patients with the hemophilic syndrome. Symptoms became apparent within the first year of life in 21 patients and 8 of them showed manifestations of the disease within the first week of life. The most common manifestations were severe and easy bruising followed by hemorrhage into joints and abnormal bleeding from cuts. The thromboplastin generation test performed on specimens obtained from all patients made differentiation between the 2 deficiencies, i. e., A. H. G. and Christmas factor, in all cases possible. The percentage of thromboplastin generated varied from 3 to 38%, with the exception of 1 patient with Christmas disease who showed 70% of normal generation. Greater dilution of the serum and mixing with serum obtained from a patient known to have Christmas disease clarified the diagnosis in this patient. The antihemophilic globulin assay was performed on 19 of the 24 patients with this defect, and the level of the factor varied between 0.1% and 6% of the normal.

The authors believe that the percentage of thromboplastin generated, although it did not correlate well with the severity of the disease, is of the greatest value in the diagnosis and differentiation of hemophilic disorders; should the routine dilutions in this test fail to show a defect, greater dilutions might be used and compared with the normal control at a similar dilution. The antihemophilic globulin assay correlated well with the severity of symptoms of the patients in whom the assay revealed a level of 1.5% or greater. Some difficulty of correlation between severity of symptoms and A. H. G. assay was found in those with a level lower than 1.5%. Administration of fresh frozen plasma appears to be a satisfactory form of therapy for the uncomplicated hemorrhagic attacks of most of these patients. No complications of or refractoriness to this therapy have been noted up to the present time.

Dupuytren's Contractors with Special Reference to Pathology. R. D. Larsen and J. L. Posch. J. Bone & Joint Surg. 40A:773-792 and 832 (July) 1958 [*Boston*].

These observations are based on 99 patients with Dupuytren's contracture. There were 79 men and 20 women, a ratio of approximately 4:1. In most previously reported series the ratio has been about 8:1. In 46 of the patients both hands were involved. The authors mention some forms of nonsurgical treatment, pointing out that most of them have proved ineffective. They treated 3 patients with alpha-tocopherol but felt that while there was a temporary softening of the contracture, the progressive course of the disease was not altered. They had no experience with hydrocortisone nor with irradiation therapy. Surgical treatment was employed by the authors on 74 (89 hands) of their 99 patients. The average duration of the symptoms before surgical intervention was 4.6 years. The ages of the patients ranged from 12 to 78 years.

The authors refrained from blind or subcutaneous fasciotomy since they feared injury to the digital nerves in the palm. They performed radical or total excision of the palmar fascia on 64 of the hands; partial fasciectomy, in 20; definitive fasciotomy, in 2; and preliminary fasciotomy, in 3. In 2 patients excision of a finger nodule only was done. In 8 patients skin-grafting of the wound was necessary because the contracture had irreparably damaged the overlying skin. Contracted bands and nodules of diseased fascia in the fingers were removed through appropriate incisions. Excellent results were obtained in 52 hands, good results in 22, fair in 5, and poor in 5.

On the basis of histological studies of specimens from 61 patients, the authors conclude that Dupuytren's contracture is a fibrous-tissue proliferation arising within the palmar fascia in intimate association with thick-walled vessels together with an increase in capillary vascularity. This tissue undergoes the well-known stages of maturation of fibrous tissue until a firm, relatively avascular, contracted scar is formed. The pathological changes do not suggest that the lesion is due to trauma, inflammation, or neoplasm. Further study is needed to determine the significance of iron pigment in the early lesions. Surgery is the only form of treatment which will produce any lasting benefit in this disease.

On the Specific Pathogen of Rheumatism. G. D. Zalessky, N. N. Vorobieva, O. I. Pirogova and others. Terapevticheskiy Arkhiv 5:3-15 (No. 5) 1958 (In Russian) [Moscow].

Zalessky and his associates succeeded in isolating cytopathogenic viruses from the blood, throat washings, and verrucous formations upon the heart valves of patients with rheumatic fever, utilizing connective tissue cell cultures. All of the isolated viruses were related in their antigen structure. They do not possess hemagglutinating capacity and they do not manifest cytopathogenic effect on the cultures of human malignant cells. Antibodies were found in the blood of the patients with rheumatic fever and these antibodies had a neutralizing effect upon the isolated viruses. The titer of antibodies in the course of the rheumatic fever disease increases slowly. Infection of rabbits with the viruses produced in a course of 15 to 45 days valvular lesions of the heart in 40% of experimental animals, predominantly of the mitral valve. A focal interstitial myocarditis was found in 60% of the experimental animals. A picture of disorganization of the basal substance of the connective tissue with edema and accumulation of acid mucopolysaccharides were strikingly manifested in the focal lesions, particularly in the leaflets of the mitral valve. In 5 of the infected rabbits autopsied 65 days after the infection with virus, there was found pronounced ulcerations of the mitral valve of sclerotic character with deformation analogous in its pathological picture to that observed in rheumatic fever in man.

Papilloma of the Large Intestine: A Clinical-Pathologic Correlation. M. B. Goldgraber and J. B. Kirsner. Gastroenterology 35:36-49 (July) 1958 [Baltimore].

The authors report on 3 men and 1 woman, between the ages of 52 and 76 years, with papilloma of the large intestine associated with a copious mucous discharge from the rectum. The clinical pattern in these patients showed a wide range from that of an asymptomatic tumor detected accidentally at a routine roentgenologic examination to that of a rapidly fatal disease with death being caused by a profound electrolyte imbalance. Roentgenologic examination of the first patient revealed marked deformity of the duodenal bulb and a shallow crater at the apex. There was a filling defect, about 3 by 2 cm. in size, in the transverse colon near the hepatic flexure. Thirty centimeters of transverse colon were resected and an end-to-end anastomosis was performed. At microscopic examination of the operative specimen the small lesion was found to be an adenomatous polyp. The larger sessile lesion was a papillomatous growth with atypia. The patient recovered and continued to be well on a modified ulcer program. The high colonic site of the tumor made of the relatively small size villous papilloma rather a rarity. The association with an adenomatous polyp elsewhere in the colon was reported by other workers. In the second patient, the villous tumor was of the pedunculated variety, with a pedicle 1 cm. long. The papilloma secreted profusely and the rectal discharges were copious. Mucous secretion in villous tumors is caused by an increase of the secreting surface, with huge numbers of goblet cells. Continuous outpouring of fluid from the large villous surface may lead to inanition and subnutritional states. The patient's symptoms such as weakness, dizziness, tinnitus, and blurred vision were interpreted as expressions of psychoneurotic personality, but probably were caused by electrolyte unbalance. There was an associated adenocarcinoma 7 cm. above the villous tumor.

The third patient passed large amounts of watery stools and proctoscopy revealed a polypoid area in the rectal mucosa, 12 cm. above the anal orifice. Abdominal operation showed a right mass in the sigmoid colon. Eight inches of the tumor-bearing intestine were resected and end-to-end anastomosis was performed; a colostomy also was carried out. The mucosa was replaced by papillomatous tissue, consisting of shaggy, villous projections 1 cm. long; 2 cm. from the excision border there was an area with superficial ulceration with uprolled edges and, microscopically, some submucosal infiltration. Twelve years later the patient was readmitted with a history of 4 to 5 years' duration of watery stools, and weight loss. He had fainting spells, postural hypotension, a wrinkled skin, and rapid pulse. Quantitative measurements of sodium and chloride secretion in the urine and in the rectal discharge showed a minimal urinary output of sodium chloride, as in severe salt depletion, and a high salt loss in the rectal discharges. An abdominoperineal resection, with an end colostomy, was performed. The gross specimen contained a soft, papillary, friable mass, and at 12 cm. from the proximal end of the specimen a polypoid, stalked tumor was found. Microscopically the main tumor was found to be a mucosecretory adenocarcinoma composed of large papillary folds. The patient recovered and the resection of the secreting tumor was followed by a return of blood chemistry to normal. Electrolyte imbalance also was the major complication in the 4th patient who had signs of dehydration, with hemoconcentration, associated with a more definite hyponatremia, hypochloremia, and azotemia. There was a severe circulatory collapse on the 4th day after admission and he died on the 7th day. Autopsy revealed a villous papillomatous growth with no invasion of the submucosa. There was a latent carcinoma of the prostate which had not metastasized. The patient's death was not caused by this carcinoma, but seemed attributable to a disturbance in the serum electrolytes.

Papillomas of the large bowel, although uncommon, are not rare and may be associated with neoplastic changes. The diagnosis of papilloma of the rectum may be difficult because of the softness of the tumor and the vagueness of the symptoms. Excessive secretion from papillomas may result in serious depletion of the extracellular sodium and chloride; the electrolytic imbalance may be fatal. Careful studies of the serum, urine, and, at times, the fecal concentrations of electrolytes are indicated in patients with papillomas of the large intestine and rectum.

The Syndrome of Dextroversion of the Heart. R. P. Grant. Circulation 18:25-36 (July) 1958 [New York].

Three cases of dextroversion and an analysis of 116 additional cases collected from the literature are presented by the author. There are 3 major differences between dextroversion and mirror-image dextrocardia. 1. In dextroversion the atria have a normal position but the ventricular heart lies rightward; there is also a 90 degree counterclockwise rotation of the ventricular heart on its long axis, with the right ventricle lying superiorly to the left ventricle. In contrast with this, in mirror-image dextrocardia all cardiac structures are rightward mirror-images of the normal heart. 2. The vast majority of cases of dextroversion (90%, i.e., 62 of 69 patients studied at autopsy) have additional intracardiac malformations, usually of the conotruncal region, while in mirror-image dextrocardia additional intracardiac anomalies are probably no more frequent than in the population at large. 3. An abdominal heterotaxy is often present in dextroversion, which is different from the situs inversus that accompanies mirror-image dextrocardia: instead of inversion of abdominal organs there is a tendency for abdominal structures to be primitive and bilaterally symmetric, frequently with congenital absence of the spleen.

Dextroversion is a part of a potentially multiorgan developmental defect that takes place at a very early fetal stage. Depending on the intensity and distribution of the abnormality, a wide variety of intracardiac and extracardiac anomalies and combination of anomalies may result of which dextroversion of the heart is perhaps only one part. Transposition of the great vessels is present in over 80% (i.e., 95 of 119 cases of dextroversion) and may partly be due to the fact that in the presence of dextroversion a normal descent of the truncal septum often produces a severer functional abnormality than does transposition and these cases do not usually survive the earliest fetal stages.

Pathology of a Lower Esophageal Ring: Report of a Case, with Autopsy, Observed for Nine Years. H. E. MacMahon, R. Schatzki and J. E. Gary. New England J. Med. 259:1-7 (July 3) 1958 [Boston].

The authors describe a lesion found at autopsy at the junction of the esophagus and stomach in a patient 58 years of age. The lesion presented a classical lower esophageal ring for more than 9 years, during which time rotengenologic diagnosis was established and was repeatedly confirmed. The lesion, appearing roentgenologically as a narrow, deep, annular indentation in the lumen of a distended lower esophagus, was found at the junction of the esophageal and gastric mucosa. It appeared as a nearly symmetrical, circular, wedge-shaped shelf or diaphragm that protruded from the wall into the lumen in a plane that was almost vertical to the long axis of the esophagus. It represented little more than a mucosa fold covered above by squamous-cell mucosa and below by gastric mucosa. A delicate annular ring of smooth muscle encircled this fold immediately beneath the epithelium covering the innermost free margin. Anatomic studies showed the ring to represent the junction of esophagus and stomach, and since the ring was seen to lie 3 cm. above the diaphragm, it appears that a corresponding piece of stomach must have been herniated through the hiatus; it also appears that a ring is always associated with a hiatus hernia which causes transient narrowing of the esophagus immediately above the stomach. Although an anatomic sphincter is not demonstrable, its presence has been postulated for many years, particularly by radiologists, who frequently saw a sphincter-like transient contraction of the esophagus immediately above the herniated stomach. The physiologic sphincter differs in several respects from the ring. The sphincter extends over a greater length of the esophagus than the ring; it is less constant in a given case; and it does not show the sharply localized lack of distensibility of the ring. It acts like an active sphincter whereas the ring behaves like a passive structure. The ring may cause dysphagia and the physiologic sphincter does not. It is not known how the ring originates or what the relationship, if any, is to the physiologic sphincter. The anatomic construction of the ring, as revealed in this case, suggests that an interruption or break in its continuity, such as might be done by bouginage or by the use of the Mosher bag, would lead to an appreciable dilatation, and one might expect bleeding from such a simple procedure to be minimal.

Nasal Carriage of Staphylococcus Aureus by Nurses. M. E. M. Thompson and W. A. Gillespie. J. Path. & Bact. 75:351-355 (April) 1958 [Edinburgh].

Many nurses become nasal carriers of antibiotic-resistant staphylococci. The authors made studies to compare the rates of acquisition of staphylococci by nurses on medical and surgical wards, to investigate the effect of wearing masks, and to determine whether different strains of staphylococci varied in their ability to persist in the noses of these attendants. Studies were made on 4 groups of student nurses. Nose swabs, moistened with sterile saline solution, were taken when the nurses arrived from the preliminary training school, and subsequently every week for 12 weeks. A few nurses were found on arrival to be nasal carriers of penicillin-resistant staphylococci and were excluded from the experiments. Most of them had worked previously in other hospitals. Some nurses dropped out because of illness, leaving 92 who stayed in the experiment. It was found that nurses who wore masks continuously on the wards acquired nasal staphylococci more slowly than those who did not wear masks. Nurses acquired nasal staphylococci almost as quickly on medical as on surgical wards. Staphylococci, phage group 3, predominated on the wards and in the nasal swabs of nurses who worked there, but group-1 strains, although less numerous, persisted longer than group-3 strains in the noses of those who acquired them and more often caused persistent nasal carriage.

Atherosclerosis in Rhesus Monkeys: I. Hypercholesteremia Induced by Dietary Fat and Cholesterol. G. E. Cox, C. B. Taylor, L. G. Cox and M. A. Counts. A. M. A. Arch. Path. 66:32-52 (July) 1958 [Chicago].

The authors present data on blood lipids obtained from 30 adult rhesus monkeys which were subjected to various fat-containing diets for periods of several months to 3 years. It was found to be difficult, but essential, to present the fat diet in a form palatable to monkeys. An effective diet was developed, with use of a commercial ground monkey food (stock diet no. 2) as the basic ration, to which were added supplements of butter and cholesterol. A 1-food-1-meal-per-day technique was found useful. The experimental fat-containing diet was prepared to contain all nutritional requirements, and almost no other food was given to the experimental animals. This helped to insure ingestion of the fat and prevented the animals from subsisting solely on fruit rations. With use of this feeding technique the development of significant hypercholesteremia in most monkeys became relatively easy. Total serum cholesterol levels of 300 to 600 mg.% developed in 1 to 3 months in the majority of animals that were adequately tested.

The hypercholesteremic responses varied, some animals showing a "low" susceptibility to diet-induced hypercholesteremia and a moderate number showing either "moderate" or "high" susceptibility. These variations in response to dietary fat are comparable to the variations clinically observable in human subjects. The hypercholesteremia is interpreted as due chiefly to the excess of dietary cholesterol, rather than to the excess of dietary neutral fat. The authors favor this interpretation because (*a*) the serum neutral fat was usually normal or slightly subnormal, even in animals with marked hypercholesteremia, and (*b*) in preliminary studies, dietary fat alone, without cholesterol, produced no significant hypercholesteremia. Grossly and microscopically visible atherosclerosis developed in most animals subjected to moderate (300 to 500 mg.%) or high (over 500 mg.%) hypercholesteremia for a period of several months or longer. In the same or similar animals, intimal lipid deposition was accelerated by subjecting segments of the vessel wall to transient freezing injury. In an addendum to this paper the authors present evidence supporting the direct relationship of dietary cholesterol to serum cholesterol, an excess of the former inducing an excess of the latter, with only a secondary role assigned to dietary neutral fat or fatty acids.

The Effects of Hormones upon Hepatic Glycogenesis. J. H. Fodden. A. M. A. Arch. Path. 66:10-22 (July) 1958 [Chicago].

The adrenal cortical glycosteroids participate in hepatic glycogenesis. The 11-oxycorticosteroids have even been referred to as the "glycogenic hormone." This property of the steroids assumed importance during the examination of the effect of glycogenolytic agents upon carbohydrate "turnover" rates in tissue slices from animals prepared to saturation with these hormones. The relationship of insulin to this steroid function was investigated on Sprague-Dawley strain male rats made diabetic by the subcutaneous injection of alloxan. Those with a high glycosuria and polyuria of several weeks' duration were starved for 30 hours. A large group of normal and diabetic rats was fed Purina Chow ad libitum throughout the period of observation. A duplicate normal and diabetic group was maintained by force-feeding a high-carbohydrate diet. Cortisone acetate was given to approximately half the number of animals, normal and diabetic, in both groups. Other diabetic rats, chosen from the free-feeding group, received daily injections of protamine zinc insulin, either alone or concomitantly with injections of cortisone acetate. A third series of normal and diabetic animals was maintained under starving conditions for 48 hours. Hydrocortisone was given by intramuscular injection to all but the control animals throughout this period. Finally, a smaller colony of partially depancreatized rats was force-fed the high carbohydrate diet during both a control and a lengthy cortisone-administration period. Multiple liver samples were obtained from all animals after decapitation. Similar studies were made on mongrel dogs.

Augmentation of glycogenesis by the administered corticosteroids was obtained only in the presence of insulin, of either endogenous or exogenous origin. The insulin-inadequate animal was incapable of this response. Only with this qualification can the glucosteroids be considered as hepatoglycogenic. A prominent degree of glycogenesis was possible under circumstances in which insulin supply or its functional efficiency was reduced.

Glycogenic needs are satisfied in the presence of manifestations of "somatic" insulin inadequacy. With absolute insulin inadequacy, liver glycogen values, with 1 exception, are below the normal for the particular circumstance; they cannot be elevated by either food or glycogenic stimuli to a degree resembling that of the insulin-adequate organism. Starvation introduces the exceptional feature, when it may appear that the diabetic has glycogen values equal to and exceeding some of the values of a normal organism during dietetic insufficiency. This must be an additional expression of the diabetic's ability to retain a "basal" value of glycogen throughout extremes of feeding or starving; it is the normal organism whose glycogen values are responsive to changes. One wonders whether these latter have been considered in the estimation of normal human hepatic glycogen. Although there is resistance to exogenous insulin in steroid diabetes, it is not known whether the islets themselves are secreting subnormal, normal, or supernormal quantities. Nevertheless, diabetes of this origin can presumably be regarded as a relative insulin inadequacy, either quantitative or functional. The latter concept implies a poorly understood chemical inhibition or antagonism, and the former, an exhausted secretory capacity of normal islet tissues under intense steroid overactivity or their actual numerical reduction. Clinical evidence suggests that where the "functional reserve" of the insulin-producing mechanism is depleted, a more intense form of diabetes is elicited in the presence of an excess of adrenal glucosteroids.

Study of Clinico-Instrumental Techniques and of Serum Analysis of a Large Group of Presenile and Senile Patients with Cardio-Aortic Atherosclerosis. M. Rosselli, A. Lordi and P. L. Malfanti. Sett. med. 46:139-145 (April 15) 1958 (In Italian) [Florence, Italy].

Pathological patterns recorded by instrumental techniques and by serum analysis were studied in a group of 210 patients with cardio-aortic disease, 148 of whom were men and 62 women. The patients were selected on the basis of their age and on absence of hypertensive, rheumatic, or congenital disorder. There were 136 patients in the presenile group and 78 patients in the senile group, with the age of 60 being the dividing line. Aortic fluoroscopy revealed pathological changes in 63 patients of the presenile group (63%) and in 74 patients of the senile group (95%); there was no significant difference in incidence of the disorders between men and women. Electrocardiograms showed approximately the same incidence of pathological changes in the presenile as in the senile group (mean average 40%) and no wide difference between the 2 sexes. Elevated serum cholesterol level was more frequent among the patients of the presenile group (mean average 67%) than among the patients of the senile group (mean average 34%). There was no significant difference in the incidence of this disorder between the 2 sexes. A higher incidence of pathological changes in the serum lipoprotein was observed in the presenile group (mean average 80%) than in the senile group (41%); it was more frequent among men in the presenile group and among women in the senile group than in the respective counterparts. The incidence of serum phospholipids level was alike in the 2 age groups and in the 2 sexes. The incidence of serum heparin level was alike among women of the 2 age groups; but it was higher among men in the presenile than in men of the senile group.

Fluoroscopy and serum analyses applied in this series of patients were more sensitive methods than electrocardiograms for recording pathological changes of cardio-aortic atherosclerotic nature. Serum analyses were more sensitive procedures in recording the same pathological changes than instrumental techniques. This observation can be partly explained by the fact that pathological changes in the serum of patients with cardio-aortic atherosclerosis start at the age of 45, extending until the age of 65, and then suddenly start to decrease in frequency. Fluoroscopic changes of the aorta, however, begin to appear at the age of 55 and then gradually increase with the advancing age of the patient.

Histologic Studies of Kidney Biopsy Specimens from Patients with Hypertension. S. C. Sommers, A. S. Relman and R. H. Smithwick. Am. J. Path. 34:685-716 (July-Aug.) 1958 [Ann Arbor, Mich.].

The authors studied 1,766 renal biopsy specimens obtained from 1,350 patients with hypertension who underwent sympathectomy at the Massachusetts Memorial Hospitals between 1946 and 1955. Single specimens had been removed in 940 patients, and renal biopsy had been bilateral in 410. The earliest parenchymal alterations observed were cloudy swelling, dilatation and atrophy of some convoluted tubules, and accompanying spasm of afferent arterioles. Significant arteriosclerotic lesions characterized the specimens of more than 66% of the patients. Subsequent to spastic arteriolar contraction, intramural edema and muscular hypertrophy were thought to occur. These, in time, were followed by arteriolar elastic tissue degeneration with pooling of its ground substance and, eventually, irregular collagen deposition and hyalinization in the afferent arterioles. Scars, lymphocytic aggregates in interstitial tissue, and slight or obvious glomerular alterations commonly accompanied the more advanced grades of arteriosclerosis. Fibrinoid necrosis was observed in arterioles in all grades of arteriosclerosis. These findings suggest that renal ischemia probably precedes detectable vascular abnormalities in patients with essential hypertension. When structural alterations have developed in the arteriolar walls, secondary renal changes may serve to maintain or accelerate the hypertensive process.

RADIOLOGY

Azygos Vein Dilatation Simulating Mediastinal Tumor. W. H. Shuford and H. S. Weens. Am. J. Roentgenol. 80:225-230 (Aug.) 1958 [Springfield, Ill.].

Normally the arch of the azygos vein casts a rounded ovoid or almond-shaped density, which rests in the angle between the trachea and right main bronchus. The shadow of the azygos vein becomes more prominent when in the course of cardiac decompensation a slight or moderate dilatation of this blood vessel takes place. Very pronounced enlargement of the azygos vein is rare. The authors describe a case in which acquired dilatation of the azygos vein reached such proportions that it simulated a mediastinal tumor. The patient was a 49-year-old man, who 12 years before had experienced sudden onset of right leg pain followed by rapid development of varicose veins and swelling of the legs as well as venous distention of the lower abdomen. Several years later hypertension developed. Since 1951 he had had persistent albuminuria and elevated blood urea nitrogen level. Retrograde and intravenous pyelograms in 1953 demonstrated a hypoplastic nonfunctioning right kidney. It was thought that 12 years before he had had a thrombosis of the right femoral vein with extension into the inferior vena cava and right renal vein with resulting atrophy of the right kidney and secondary hypertension. In 1955 and again in 1956 he was hospitalized for mild congestive failure, which responded to treatment. At his last hospitalization in 1956 roentgenologic examination of the chest disclosed a round, well circumscribed mass 3 cm. in diameter in the right superior mediastinum in the anatomic region of the azygos vein. This density had not been present on a chest roentgenogram made 5 months before.

Roentgenograms of the chest 10 days after admission of the patient revealed a very pronounced decrease in the diameter of the observed density. In order to confirm the impression of marked dilatation of the azygos vein, intraosseous venography was performed. Contrast medium (15 cc. of 70% Urokon) was injected into the spinous process of the 11th thoracic vertebra, leading to extensive filling of the vertebral venous plexus and opacification of the dilated azygos arch. Roentgenograms taken in the upright position approximately 4 weeks after admission failed to demonstrate the dilated azygos vein. The roentgenologic features of the azygos vein in normal and pathological conditions are discussed, and its role as a collateral channel in superior and inferior vena cava obstruction is emphasized. A study of 6 patients in whom inferior vena cava ligation had been performed 1 to 10 years previously revealed no visible increase in the size of the azygos shadow. It appears likely that cardiac decompensation was a major factor contributing to the huge dilatation of the azygos vein in the described case.

Observations on Massive Osteolysis: A Review of the Literature and Report of a Case. P. M. Johnson and J. G. McClure. Radiology 71:28-42 (July) 1958 [Syracuse, N.Y.].

The authors collected from the literature the cases of 31 patients with "massive osteolysis," a term recently introduced to identify a rare and specific type of bone dissolution, associated with a benign, noncystic osseous angiomatosis and characterized by a progressive localized resorption of bone with resultant deformity. The study of these cases revealed that the disease which was histologically confirmed in 11 of the 32 patients possesses distinctive clinical, pathological, and roentgenologic features. Histologically benign, the disease destroys bone locally and is not confined by bony margins. After a variable period of localized activity within a skeletal region, the disease underwent spontaneous arrest in 29 patients, but it resulted in death after unremitting progression in 2 patients. There are no associated endocrine or metabolic disturbances. The mechanism of bone destruction and resorption is unknown.

In its early stages the disease cannot be distinguished roentgenologically from localized, nonsclerosing osteolysis due to other causes. The roentgenologic appearance becomes diagnostic of massive osteolysis when in the course of the disease unilateral partial or total disappearance of contiguous bones, tapering of bony remnants, and absence of a sclerosing or osteoblastic reaction are observed in a child or young adult. Confirmation of the diagnosis before biopsy may be obtained by methods which opacify the angioma, either directly or indirectly. A certain amount of therapeutic success followed irradiation therapy in a few patients, although in none did complete healing occur. While the effectiveness of irradiation therapy in massive osteolysis cannot yet be critically evaluated, this method deserves thorough therapeutic trial in future cases of this disease. It is doubtful that extirpative surgery is applicable to patients with massive osteolysis although reconstructive surgery may be valuable in selected patients.

An additional case of massive osteolysis in a 29-year-old colored woman is reported. The patient, complaining of a limp and pain in the left hip, was admitted to the Memorial Hospital of the University of North Carolina. Roentgenologic examination revealed a pathological fracture of the acetabulum. After a course of external irradiation therapy with a midline tissue dose of 1,420 r delivered to the left hemipelvis and lower lumbar spine through 2 opposing ports in 18 days, calcified callus appeared, but bony union did not occur. There was a concomitant transient rise of the alkaline phosphatase level in the serum. After a second course of irradiation therapy with a midline dose of 1,900 r delivered to the left hemipelvis in 16 days, crutch walking, with no weight-bearing on the left lower extremity, was begun. Two and one-half years after the onset of the disease the patient remained able to walk on crutches, but could not bear weight on the left lower extremity which was 1 in. shorter than the right. There had been slight further resorption of the left trochanteric tip. Osseous angiography was carried out with the aid of local analgesia. Frontal and oblique roentgenograms were obtained with a serialographic camera. There was opacification of the left ilium and spread of the contrast medium into the left gluteus medius and minimus muscle adjacent to the left femoral greater trochanter. A total dose of 80 cc. of diatrizoate (Hypaque) sodium was used. About 35 cc. was recovered by intraosseous aspiration at the end of the procedure. A course of irradiation therapy to the left trochanteric region is contemplated.

Occlusion of the Abdominal Aorta. S. Chiappa. Am. J. Roentgenol. 80:297-305 (Aug.) 1958 [Springfield, Ill.].

Since the introduction of aortography, occlusion of the abdominal aorta, which hitherto had nearly always been a postmortem finding, is being recognized in living patients and is being successfully operated on. The author is concerned chiefly with 5 of 104 patients in whom abdominal aortography was performed at the Radiologic Department, Söder Hospital, Stockholm, Sweden, and at the Institute of Radiology of the University of Pavia, Italy. Aortography was performed by direct puncture of the abdominal aorta just above the level of the renal arteries. The 5 patients whose histories are presented had complete high occlusion of the abdominal aorta, accompanied by the formation of collateral circulations, which enabled the patients to survive the otherwise fatal obstruction of the abdominal aorta. The author describes the roentgenologic aspects of the collateral pathways supplying the abdominal viscera as well as the lower extremities.

The first of the 5 patients had a collateral circulation in which the superior mesenteric artery through its right side branches, i. e., middle colic artery, right colic artery, and ileocolic artery, supplies the inferior mesenteric artery by way of the long arterial arch of Riolan, which is a pre-existing anastomosis between the ascending branch of the middle colic artery and the corresponding branch of the left colic artery, the latter being a collateral branch of the inferior mesenteric artery. In another patient findings were similar, but they were less evident, owing to the greater extension of the occlusion. The blood supply to the inferior mesenteric artery and its left colic branch was made possible through Riolan's arch, which was not completely visible on the aortogram. A Smithwick operation had been combined with the removal of a thrombus from the femoral artery, thus allowing the introduction of a catheter into the right external iliac artery. In this manner, a retrograde injection had been obtained of the common iliac artery and of the terminal aorta. One could see now some of the right lumbar branches of the aorta and the terminal middle sacral branch, with its segmental anastomosis with the lateral sacral artery of the opposite side. Through these collaterals, a filling of some of the left gluteal vessels became possible. Part of the contrast medium, flowing back along the catheter, reached the internal iliac artery whose vesical and internal pudendal branches were also opacified. Finally, there was a filling of the urogenital network and of the obturator arteries, which serve as collaterals of the deep femoral artery through their anastomoses with the circumflex femoral vessels. The same situation was observed in a third patient. In all 3 of these patients a new blood supply to the distal portion of the colon was established by the collateral pathways.

In a 4th patient the restoration of the visceral circulation was more complex. It may be inferred that blood which had been able to flow from the lumbar network of the inferior mesenteric artery could retrogress through the anastomoses between the vessels of the large and small intestine as far as the branches of the superior mesenteric artery. As regards the collateral pathways to the lower extremities, the femoral network was reached through the anastomoses between the gluteal branches, the iliac circumflex and the femoral circumflex branches. In a 5th patient a high occlusion of the aorta below the renal arteries was present, owing to a partially free thrombus, which reached the superior mesenteric artery, causing it to be only partly filled. One of its right branches was connected with the left colic artery through a long anastomotic arch, thus allowing a collateral circulation to the inferior mesenteric artery, the terminal branches of which take part in the formation of the hemorrhoidal network, which is connected on one side with the sacral and on the opposite side with the urovesical network.

Roentgen Diagnosis of Acute and Chronic Traumatic Aneurysm of the Thoracic Aorta. I. Steinberg and J. A. Evans. Am. J. Roentgenol. 80:237-247 (Aug.) 1958 [Springfield, Ill.].

Aneurysms of the thoracic aorta occur more frequently, particularly in the course of traffic accidents, than is suspected. Multiple fractures and internal injuries associated with profound shock overshadow the thoracic injuries. Rupture of the thoracic aorta due to blunt trauma occurs most frequently at the top of the aorta. This is explained by the physical forces which are concerned with deceleration acting with undue stress on the aorta, producing a tear just beyond the point of fixation by the brachiocephalic arteries and the insertion of the ligamentum arteriosum. Repeated roentgenography of the chest for many weeks following injury permits recognition of mediastinal hematomas, hemothorax, and the development of a localized bulge (aneurysm) in the region of the aortic knob. Unless chest roentgenograms are made after thoracic injury, many years may elapse before chronic traumatic aneurysms of the thoracic aorta are diagnosed. Often, a mediastinal mass found in a routine chest roentgenogram in asymptomatic patients may be the first inkling of the aneurysm. In others, chest pain, cough, hoarseness, or hemoptysis may lead to roentgenologic study of the thorax and discovery of a mediastinal mass and aneurysm.

Roentgenographic examination, especially roentgenoscopy and esophagraphy, are valuable for demonstrating a mass at the top of the aorta. There is a high incidence of calcification in the aneurysmal wall in chronic cases. Angiocardiography is invaluable for diagnosis of aneurysms and readily differentiates them from mediastinal tumors. Finally, the characteristic location of traumatic aneurysms at the top of the aorta, the absence of a positive serologic test for syphilis, and the history of trauma establish the diagnosis. Operative repair of an acute traumatic aneurysm of the thoracic aorta has not, as yet, been reported. The critical condition of the patient, often in shock and with multiple fractures and internal injuries, makes surgery hazardous and formidable. Excision of chronic traumatic aneurysms of the thoracic aorta and replacements by grafts have been successfully accomplished. However, operation should be limited to those patients who show evidence of enlargement of the aneurysm and/or develop symptoms.

Splenoportography: Some Advantages and Disadvantages. M. M. Figley. Am. J. Roentgenol. 80: 313-323 (Aug.) 1958 [Springfield, Ill.].

This report is based on the author's experience with 125 attempts at percutaneous splenoportography and a review of several large series of cases, which have been reprinted since the method was first described by Abeatici and Campi in 1951. Splenoportography is usually successfully accomplished with very simple techniques. It fails in from 10 to 16% of attempts due to failure to puncture the spleen or to inject into it properly. The present techniques, while desirably simple, need modification in order to insure a more exact prepuncture estimation of the splenic position, size, and thickness. This is particularly true if the spleen is not enlarged. In such patients the "controlled" puncture technique supplemented by test injections is probably preferable to the "blind" technique. Splenoportography is relatively free from major hazards. There is some bleeding in many cases as evidenced by the fact that explorations immediately following the procedure have disclosed 50 to 200 cc. of free blood. Two of the 125 patients were still bleeding at laparotomy 30 to 60 minutes later and another had accumulated 300-400 cc. of blood near the spleen. To date none of the author's patients had had laparotomy because of bleeding, although 1 patient with unsuspected hypersplenism and thrombocytopenia required a transfusion of 1,500 cc. of blood for control of hemorrhage. Other investigators have had about the same experience with postpuncture bleeding.

Two general types of visualization are obtained. One type shows only the splenic vein fed by 1 or more hilar tributaries and the portal vein and its branches. The author feels that such images indicate no portal obstruction or portal hypertension although this does not exclude the possibility of disseminated hepatic disease. The other type shows sustained hepatofugal flow in portal and splenic tributaries. These images are considered as suggestive of some portal (or splenic) obstruction. There is evidence that portal hemodynamics are not altered by splenic injection of contrast material. Splenoportography is most rewarding in the study of portal hypertension, especially for the differentiation of intrahepatic and extrahepatic block relative to its surgical treatment. The uncommon pitfall of total diversion of the contrast material from a patent portal vein does not invalidate this indication. Other occasionally valuable applications include the positive demonstration of portal hypertension in cases of unexplained gastrointestinal hemorrhage, evaluation of patency or portacaval shunts, and the recognition of cirrhosis. As regards the detection of hepatic and pancreatic neoplasms, the method has not been consistently successful.

ANESTHESIA

The Anaesthetist and the Emphysematous Patient. J. F. Nunn. Brit. J. Anaesth. 30:134-141 (March) 1958 [Altrincham, England].

Patients with emphysema frequently require operations, but emphysema presents such a widespread disturbance of pulmonary function that anesthesia may be complicated by a number of different factors. Associated bronchitis causes the tracheobronchial tree to be hypersensitive and anesthesia may be complicated by coughing, breath holding, or bronchospasm. Postoperative exacerbation of infection may have serious consequences. Induction by inhalational anesthesia is complicated by the delayed uptake of gases due to defective mixing. Respiration in emphysematous patients is particularly sensitive to depressant drugs and, in addition, they have a diminished ventilatory response to a raised arterial carbon dioxide tension. Furthermore, reliance of these patients on the "anoxic drive" reduces the alveolar ventilation when the inspired oxygen concentration is raised unduly. These factors may precipitate a vicious circle of carbon dioxide retention leading to narcosis. After a long period of artificial ventilation, there may be some difficulty in restoring the blood gas tensions to levels which are compatible with spontaneous respiration.

Expiratory obstruction may complicate artificial ventilation and lead to hyperinflation with both respiratory and circulatory embarrassment. Cautious use of a reduced airway pressure during expiration may be of value. Neither spontaneous respiration nor artificial ventilation is free from difficulties in patients with emphysema and many anesthetists prefer to use local or regional analgesia when such techniques are practicable. After thoracotomy there is danger of postoperative hypoventilation, particularly if much functioning lung has been removed. Artificial ventilation may be the only effective treatment. Mention is made of certain operations to improve pulmonary function in emphysematous patients, such as resection of the parasympathetic nerve supply to the tracheobronchial tree, or the removal of air cysts, particularly the valvular variety causing progressive distention. The spontaneous pneumothorax, particularly the recurrent form that can be associated with emphysema, may require chemical pleurodesis or sealing of the leak. Some patients with severe emphysema pass into carbon dioxide narcosis which may be resistant to chemical stimulation. A tracheostomy alone may be sufficient to restore adequate alveolar ventilation but occasionally it is necessary to resort to artificial ventilation.

Iatrogenic Disease and Anesthesia. J. W. Dundee. Brit. M. J. 2:1433-1438 (June 21) 1958 [London].

It has recently become apparent that many forms of routine medical treatment may affect the response to anesthesia. In 1951 Davison warned anesthetists to be wary of patients who were being treated with either pentamethonium or hexamethonium, as the hypotensive effect of the methonium compound is more marked in the anesthetized than the conscious patient. A severe fall in blood pressure occurred in 2 patients during the induction of anesthesia, and sudden death followed induction of anesthesia with thiopentone and a muscle relaxant in 1 patient. In none of the 3 cases was the anesthetist aware of the methonium therapy. Based on recent work by Payne in cats and its possible application to man, patients receiving mecamylamine are liable to the same changes in blood pressure as patients on hexamethonium regimen. Rauwolfia although not a ganglion-blocking agent, does potentiate their action, causes hypotension, and may also potentiate the action of the narcotics and produce nasal congestion and excess salivation. The action of the Veratrum alkaloids on the cardiovascular system is in the form of a reflex fall in blood pressure and a reflex fall in pulse rate known as the von Bezold effect. All of the drugs currently employed in the management of hypertension are capable of affecting the course of anesthesia.

In adrenocortical insufficiency patients react to the stress of anesthesia and surgery by hypotension out of proportion to the blood loss, respiratory depression, and delayed recovery. These catastrophes from drug-induced adrenocortical failure are entirely preventable by increasing the dosage in those patients who are receiving cortisone or corticotropin prior to operation. Long-term use of chlorpromazine which is continued up to the time of induction of anesthesia prolongs the duration of action of both narcotics and relaxants. More important than its action in potentiating narcotics and relaxants are the cardiovascular effects of chlorpromazine, which include the menthonium-like potentiating hypotensive action of thiopentone. The long-term use of sedatives and analgesics leads to tolerance to their therapeutic effects which in turn causes cross-tolerance to the drugs used in anesthesia. Caramiphen and other preparations used in the treatment of Parkinsonism are reported as capable of potentiating the action of the barbiturates. Of the 589 fatalities reported by Edwards and others in 1956 the largest single cause of death was regurgitation and vomiting (110 of 589) followed by aspiration. Mention is made of 6 deaths due to fluid aspiration among diabetics to whom glucose had been given orally preoperatively. The potential hazard of x-ray therapy in anesthesia is depicted in the case of an individual who after having been subjected to deep x-ray therapy for 5 months prior to operation for a carcinoma of the mouth exhibited extreme sensitivity to cyclopropane. Lesser and Eason reported a death from the use of pitocin during emergence from light cyclopropane anesthesia. Failure of a child to breathe following delivery may be attributed to the anesthetic, especially if thiopentone is given, without any reference to previous analgesics. In very few cases was the anesthetist aware of the use of the various drugs prior to operation, associated hypotension, or prolonged unconsciousness with any form of routine medical treatment.

PHYSIOLOGY

Effect of Atherosclerosis and Age upon the Serum Mucoprotein and Hexosamine Levels in Man. C. J. Schwartz and H. R. Gilmore. Circulation 18:191-195 (Aug.) 1958 [New York].

Serum hexosamine levels were determined by the method of West and Clarke and serum mucoprotein levels were determined according to the method of Winzler and co-workers in 24 normal male medical students, between the ages of 19 and 35 years; in 23 men between the ages of 40 and 72 years, with atherosclerosis, most of them having anginal pain of effort, and 3 with previous myocardial infarction; and in 16 normotensive men, between the ages of 37 and 71 years, without clinical or electrocardiographic evidence of myocardial ischemia, and judged to be free from atherosclerosis on clinical assessment. Single venous blood samples were collected from the median cubital vein, and the serums were obtained after centrifugation at 3,000 rotations per minute for 10 minutes. The biochemical determinations were performed without knowledge of the source of the samples. Highly significant elevations of both the serum mucoprotein and hexosamine levels were observed in the patients with atherosclerosis; these elevations were above those observed in the men with comparable age and without atherosclerosis. There was also a trend for an increase in both these fractions as the result of aging. These findings are interpreted as reflecting an increased depolymerization of connective tissue-ground-substance mucopolysaccharides. It is suggested that breakdown of connective tissue ground-substance plays a role in the pathogenesis of atherosclerosis, possibly as a precursor to fibrogenesis.

The Position of the Corticoid in the Pathogenesis of the Congestive Decompensation. T. Di Perri and R. Guideri. Riforma med. 72:689-692 (June 21) 1958 (In Italian) [Naples].

The authors studied the correlation between hyperaldosteronism and cardiovascular congestive decompensation in patients who had both disorders at the same time. They observed that rest and dehydration diet instituted in patients who had right cardiac decompensation associated with edema resulted in the tendency of hyperaldosteronism in the urine to return to normal limits. Edema subsided through increased diuresis. Patients in whom cardiac disease was associated with hyperaldosteronuria had a lower excretion of aldosterone in the urine at night when they were in reclining position than at daytime when they were in orthostatic position. It is probable that this phenomenon is related to the circulatory factors, because there was no difference in the titers of aldosterone in the urine of patients who were in reclining position during all 24 hours. Another element supports this hypothesis: There was no difference in the titers of aldosterone in the urine between the 2-day periods if the daytime orthostatic position of the patient was combined with a course of intermittent administration of oxygen. This study also brought out that high venous blood sodium level determines increased titers of aldosteronuria in patients with cardiac disease and decreased titers of aldosteronuria in normal persons.

PUBLIC HEALTH

Epidemic Shellfish Poisoning in New Brunswick, 1957. R. M. Bond and J. C. Medcof. Canad. M. A. J. 79:19-24 (July 1) 1958 [Toronto, Canada].

Two epidemics of paralytic shellfish poisoning occurred in Canada in 1957, 1 in New Brunswick in June, the other in British Columbia in October. It has been known for many years that bivalve molluscs such as clams and mussels, in various sections of both coasts, occasionally become poisonous and are sometimes poisonous enough to produce illness and even death of consumers. In June and July, 1957, soft-shell clams (Mya arenaria) and bar clams (Spisula solidissima) from a 20-mile reach of the Bay of Fundy shore in New Brunswick caused 33 poisonings, mostly among picnickers; 14 were severe, the others mild. Four patients were hospitalized but there were no deaths. Compilation of case histories and assays of poison content of shellfish (highest—17,800 mouse units per 100 Gm. of raw meat) permitted calculations of poison dosages. Some people were tolerant to massive doses and others not. The most sensitive reacted to small doses. Loosening of teeth, incipient respiratory failure, and a recurrence of all symptoms after partial recovery were observed in the most severe case. There is evidence that the poison may be absorbed through the oral mucosa. This may explain the orderly appearance of the various symptoms of poisoning. An epidemic similar in character occurred in 1945, when 26 persons were poisoned by shellfish in the Fundy region of New Brunswick and Nova Scotia.

Since 1943, Fundy shellfish stocks have been regularly checked by the Department of Fisheries and the Department of National Health and Welfare. Based on this sampling, an exacting control has been established regulating harvesting of shellfish for market. Mussel fishing has been prohibited the year round and, during the critical seasons, dangerous clam areas have been quarantined to commercial digging. Besides this, notices have been posted, warning the general public of the risk of taking shellfish. This was done as usual in 1957. Lepreau Basin, for instance, was posted on Saturday morning, June 22; but 23 persons were poisoned by clams dug there in the next 48 hours. In interviews on the following Tuesday, several persons admitted having seen and read the warning signs. Some more convincing form of public information is required. After June 23, newspaper coverage was excellent and the authors credit it with discouraging other picnickers from eating clams. Nevertheless, on June 30 and on July 17, some shore residents ate clams and were poisoned. Signs and newspaper warnings were not enough. Public education is most important.

BIOCHEMISTRY

Effects of Dietary Proteins, Methionine and Vitamins on Plasma Lipids and Atherogenesis in Cholesterol-fed Cockerels. J. Stamler, R. Pick and L. N. Katz. Circulation Res. 6:442-446 (July) 1958 [New York].

The authors suggest that dietary imbalance with excess of some nutrients, e. g., total calories, total fats, saturated fats, refined carbohydrates, and inadequacy (absolute or relative) of others such as proteins, vitamins, minerals, and essential fatty acids, may be particularly pernicious in inducing hypercholesteremia and atherosclerosis. Four series of experiments were performed utilizing a total of 180 cockerels. The reduced protein diet was associated with a lower feed intake and weight gain. Plasma lipid levels were essentially similar in the reduced protein and control groups, although a higher incidence of thoracic aorta lesions was observed in the reduced protein group in spite of the fact that atherogenesis was otherwise essentially similar in the 2 groups. The low methionine group exhibited a level of feed intake and weight gain comparable to that of the control group, however cholesteremia, cholesterol/phospholipid (C/P) ratio, incidence of thoracic and coronary lesions, and the serverity of coronary lesions were all increased. The borderline adequate methionine group was not significantly different from its matched control. Feed intake and weight gain tended to be less in the high protein-high vitamin groups (supplementation of a purified ration) compared with controls. In 2 of the 3 series hypercholesteremia was less marked in the high protein-high vitamin groups, and with the exception of 1 bird with a minimal lesion thoracic aorta atherogenesis was absent in all high protein-high vitamin chicks. Feed intake and weight gain were greater with 35% soy protein than with the same level of casein-gelatin, although hypercholesteremia and aorta and coronary atherogenesis tended to be less marked with the soy than with the casein-gelatin protein. Feed intake and weight gain were likewise slightly less in the high protein-high vitamin group (supplementation of a commercial mash) and hypercholesteremia and aorta and coronary atherogenesis were also less marked. Separate supplementation with the high vitamin alone resulted in coronary atherogenesis as marked as the control. In the group supplemented with high protein alone the incidence of coronary atherogenesis was markedly lower than in the controls and was similar to that of the high protein-high vitamin group. In all series cholesterol supplementation at the same or twofold greater levels in the purified as compared with the commercial mash group yielded less marked hypercholesteremia and atherogenesis. The findings of these experiments indicated that high protein-high vitamin supplements suppressed hypercholesteremia and atherogenesis in cholesterol-oil-fed cockerels with both purified and commercial mash diets and that inadequacy of methionine intake aggravated the hypercholesteremic and atherogenic effects of cholesterol-oil ingestion.

Effects of Dietary Protein and Carbohydrate Level on Cholesterolemia and Atherogenesis in Cockerels on a High-Fat, High-Cholesterol Mash. J. Stamler, R. Pick and L. N. Katz. Circulation Res. 6:447-451 (July) 1958 [New York].

The reduction of protein intake in the diet of cockerels resulted in markedly intensified hypercholesteremia and atherogenesis in both the aorta and the coronary vessels. Restoration of the protein intake by the addition of soy protein with continued inclusion of 45 to 20% sucrose in the mash prevented this. These findings substantiate those of the previous report where a reduction in the dietary protein level caused significant effects on the hypercholesteremia and atherogenesis in chicks on high-fat, high-cholesterol ration. The results of the present experiment indicate that the deleterious effects observed were the result of the consequent reduction in protein intake, and not the incorporation in the diet of sucrose per se.

BOOK REVIEWS

Alcoholism. By Arnold Z. Pfeffer, M.D. Medical monographs in industrial medicine 2. Editor-in-chief: Anthony J. Lanza, M.D. Consulting editor: Richard H. Orr, M.D. Cloth. $4.50. Pp. 98. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W. C. 1, England, 1958.

The author of this concise and well written volume has had a wide experience in treating patients suffering from alcoholism, particularly in the setting of a special clinic maintained by and for industrial personnel. The book covers the general approach to the problem and includes definitions, etiology, diagnosis, treatment, and prognosis. Descriptions of the medical and neuropsychiatric complications are adequate, and their management is clearly described. There is a good description of the Consolidated Edison–New York University–Bellevue Medical Center Plan, the clinic in which the author works. There are some interesting observations on the analytic and psychiatric approach to this problem that should be of value to the reader. The medical treatment is well outlined, and details of treatment are given. Various industrial programs for alcoholism are mentioned, and additional facilities are listed. This book should be of special value to those who have had some experience with alcoholic patients. It offers a good reference for general physicians interested in the care and treatment of alcoholics and for physicians connected with industrial medical departments.

The Physiology and Pathology of the Cerebellum. By Robert Stone Dow, M.D., Ph.D., Associate Clinical Professor of Medicine (Neurology), University of Oregon Medical School, Portland, and Giuseppe Moruzzi, M.D., Professor and Head, Institute of Physiology, University of Pisa, Pisa, Italy. Published with aid of Dean J. B. Johnston Memorial Fund. Cloth. $12.50. Pp. 675, with 185 illustrations. University of Minnesota Press, Minneapolis 14; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, England; Thomas Allen, Ltd., 266 King St., W., Toronto, Canada, 1958.

At a time when most books on the newer aspects of the medical sciences are symposiums in which each author reports on a special problem and frequently disregards its relation to the whole, the attempt of these two authors to give a survey of a large area of research is most welcome. The authors, well known for their extensive work in neuroanatomy and, particularly, neurophysiology of the cerebellum, combined their efforts in writing the section on the physiology of the cerebellum, whereas Dow is responsible for the shorter clinical part. They first review the literature on the effects of cerebellar ablation and on the stimulation of the cerebellar cortex and nuclei. These chapters are followed by one concerned with the extensive electrophysiological work of the past two decades and a section on the relations between the cerebellum and the spinal cord, the cerebral cortex, and the labyrinth. In addition, the influence of the cerebellum on the autonomic nervous system is discussed. There are also short chapters on the history of cerebellar research and on developmental physiology of the cerebellum. Although a supplementary volume on comparative anatomy of the cerebellum is in preparation, the authors do not neglect the anatomic relationships. There is a thorough discussion of the world literature on every conceivable aspect of cerebellar physiology which makes this book indispensable to the neurophysiologist. The careful and critical evaluation of the experimental findings is admirable. The book shows the great erudition of the authors. It is clearly written (although too complex for the general medical reader), is abundantly illustrated, and contains an extensive bibliography. The classic theories of cerebellar function of Luciani and Holmes are critically discussed, but no new theory is presented covering such important new findings as the exteroceptive and visceral cerebellar projections, the modification of autonomic reflexes through the cerebellum, and the complex relations existing between the cerebellum, the brain stem, and the intrafusal system innervating the muscle spindles. The authors believe that the time is not yet ripe for any attempt to formulate a new concept of cerebellar functions. The second part of the book discusses the symptoms and lesions of the cerebellar disorders. The description is succinct but well documented. Each chapter is provided with a clear summary. The whole work is an outstanding contribution to the medical literature.

Diseases of the Esophagus. By J. Terracol, Professor of Faculty of Medicine of Montpellier, France, and Richard H. Sweet, Associate Clinical Professor of Surgery, Harvard Medical School, Boston. [Based on second edition of "Les maladies de l'esophage," 1951.] Cloth. $20. Pp. 682, with 408 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W. C. 2, England, 1958.

To those familiar with Terracol's original comprehensive book on the esophagus, this English translation is most timely and welcome. The esophagus, long neglected by clinicians other than a few enthusiastic endoscopists, has recently become a subject of numerous monographs and textbooks. The thorough manner in which Terracol has covered the subject has, fortunately, been retained by Sweet, who has added much to the book, includ-

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

ing his own and other surgical contributions that have so changed the management of diseases of the esophagus in the past 15 years. Unfortunately, the chapters on physiology and endoscopy have not received a similar critical revision. This is most apparent in the use of obsolete illustrations that detract from the appearance of the book. Terracol's section on gastroscopy has not been included in the translated version, since the book concerns the esophagus alone. The voluminous bibliography stresses the European and, particularly, the French contributions. This book should be of interest to gastroenterologists, radiologists, endoscopists, and thoracic surgeons. It has been made much more practical through rearrangement and condensation in translation.

Fractures and Other Injuries. By members of fracture clinic of Massachusetts General Hospital and of faculty of Harvard Medical School. Edited by Edwin F. Cave, M.D. Editorial Board: Joseph S. Barr, M.D., and others. Cloth. $28. Pp. 863, with 612 illustrations, drawings by Muriel McLatchie Miller, photography by Donald Withee. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1958.

The organization of a fracture clinic and fracture service in the Massachusetts General Hospital was begun by C. L. Scudder in 1917. From 1917 until 1947 the clinic was directed by a general surgeon with one or more orthopedic associates. Edwin Cave was the chief of this clinic from 1947 to 1957. In the preparation of this volume he has been ably assisted by an editorial board, consisting of Joseph S. Barr, Bradford Cannon, Claude E. Welch, and James C. White. Each chapter in this impressive book was written by one or more of 39 distinguished contributors. In addition to a thorough and excellent presentation of the methods and techniques of dealing with fractures, this book discusses such basic problems as the organization of a fracture service, metabolic response to trauma, metabolic bone disease with consideration of the susceptibility to trauma of bones so affected, the use and abuse of x-rays in fractures, traumatic shock, and anesthesia for the injured. There are, also, chapters on cranial-cerebral injuries, injuries to the spinal cord and cauda equina, injuries of peripheral nerves, chest injuries, soft tissue repairs, the management of abdominal injuries, injuries to the genitourinary tract, and blood vessel injuries. The word "rehabilitation" is often heard, but most physicians are not adequately informed of the significance of the process and the techniques of physical medicine and rehabilitation. The chapter on this subject should be valuable to all physicians who read it. This is a remarkable book. Never before have so many specialists combined their abilities and experiences in the preparation of a single book dealing with fractures and other injuries. In an era when there is danger of mass casualties occurring in any thickly populated area, it is important that every physician, regardless of his special interest, be informed about the techniques of dealing with acute injuries to any part of the body. This book should be available in every hospital or medical school library and should be in the office library of every physician who may be called on to treat fractures or other injuries.

Social Class and Mental Illness: A Community Study. By August B. Hollingshead, Ph.D., Professor of Sociology, Graduate School, Yale University, New Haven, Conn., and Fredrick C. Redlich, M.D., Professor and Chairman, Department of Psychiatry, School of Medicine, Yale University. Cloth. $7.50. Pp. 442, with illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W. C. 2, England, 1958.

This volume is the first part of a five-year research project by a team of social scientists and psychiatrists who have investigated the influence of social stratification on mental illness in a community of 250,000. The research was focused on two questions: Is mental illness related to social class? Does a mentally ill patient's social level affect the treatment for his illness? To answer these questions the authors carried out a series of studies on the social structure of the community. In their report they describe the characteristics of typical families in five different social levels. They conducted similar studies of psychiatrists in private practice and in public and private hospitals. They likewise surveyed all patients in psychiatric treatment and the institutions in which they were being treated. As a result they made some startling discoveries regarding the care of mentally ill persons in New Haven, Conn., which practicing physicians and all those interested in medical research should find worth reading. This carefully conducted project raises many questions for additional studies of the medical care of the mentally sick. It is hoped that similar studies will be undertaken in other communities and that similar surveys will be made of patients in general medical and surgical hospitals in the same community in which this report was developed or in other communities of similar size.

Modern Trends in Pediatrics (Second Series). Edited by A. Holzel, M.D., D.C.H., and J. P. M. Tizard, M.A., B.M., M.R.C.P. With foreword by Wilfrid Gaisford, M.D., M.Sc., F.R.C.P. Cloth. $14. Pp. 372; 13, with 46 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1958.

The authors of this book selected a large group of specialists to discuss recent and future trends in their respective subjects. These include geneticists, virologists, physiologists, neurosurgeons, statisticians, psychiatrists, and physicists. There is some fine information in this volume to stimulate both pediatricians and general practitioners. The book, while not all inclusive, deals with the most important problems of pediatricians today. It is well written and is highly recommended to those interested in this field.

QUESTIONS AND ANSWERS

PROPHYLAXIS FOR POISON IVY

To the Editor:—*Please give information about the most recent prophylactic management against poison ivy and poison oak.*

Gerald L. Downie, M.D., Kankakee, Ill.

Answer.—Obviously, the best prophylaxis against poison ivy or poison oak dermatitis is avoidance of exposure to the plants. This is not always possible. Most exposure is accidental, seldom anticipated, and often inescapable. The use of protective creams, lotions, and ointments applied prior to exposure has proved only partially successful. Those that contain zirconium, when used before or very soon after exposure, are more effective because they inactivate urushiol, the active principle of the plant, which produces the dermatitis. Desensitization in one form or another has been employed with varied success for many years. Eating leaves of the offending plant was reported among the American Indians more than 150 years ago; even today farmers are said to chew a leaf occasionally as a prophylactic desensitizing measure. Oral administrations have always been preferred to the parenteral method. Several commercial prophylactic preparations in tablet and liquid form for oral administration have been available for a long time. Each has its proponents, and each, no doubt, has had some measure of success. For the most part, these products are alcoholic solutions of the plant's oleoresin or pulverized dried leaves or seeds. The saturated analogue of the active principle of the poison ivy plant, 3-pentadecylcatechol, has been used experimentally with good results but seems to be too toxic for general use. At the present time, the most promising product is an alum-precipitated pyridine extract. This does not appear to have toxic qualities. Until recently, desensitization with this extract had to be performed parenterally. It is now available in tablet form, and its efficacy was reported by Langs and Strauss (in a paper read before the Section on Dermatology at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958).

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

GENERALIZED VACCINIA

To the Editor:—*A 23-month-old child was vaccinated for smallpox. After receiving the vaccine, he remained completely afebrile and asymptomatic for seven days, except for the appearance of a pearly gray vesicle at the site of inoculation. On the eighth day, he began to have a low-grade fever and symptoms of generalized malaise. On the ninth day, the temperature spiked to 102 F (38.9 C); 24 hours after the initial temperature elevation, the patient broke out in a fine, flat, macular, erythematous eruption, with the lesions measuring 3 by 3 mm. in diameter. These lesions first appeared on the chest and extended from the clavicles to the symphysis pubis. Within three hours they had extended to the back, beginning at the hair line and extending down to the buttocks. The vesicle at this time became desiccated and was surrounded by a 6-cm. area of erythema. Findings on physical examination were otherwise essentially negative. No medicaments were given at this time. Physical examination on the 10th day revealed the pharynx to be injected, and in view of this finding the patient was given 300,000 units of procaine penicillin. Chlorpheniramine was given under the assumption that this rash was an allergic response to the vaccine. The rash began to fade four days after the initial eruption; however, the remaining lesions began to have a purpuric appearance. The area around the vesicle also became purpuric and resembled the color of the maculopapular rash on the patient's trunk. Ten days after the first appearance of the rash, the lesions had completely subsided and the patient was afebrile and asymptomatic. His history is essentially negative, with no previous record of allergy. If this was an allergic phenomenon, would it be safe to revaccinate the child in five years, or should he be vaccinated at a shorter or longer interval than the prescribed five years? Should any precautions be taken at time of revaccination?*

Ronald G. Aucoin, M.D., New Orleans.

Answer.—The clinical picture presented by this patient appears to be compatible with generalized vaccinia. The possibility of eczema vaccinatum could be discarded on the grounds of lack of previous existence of eczematous lesions. Generalized vaccinia is a rare condition; its frequency has been estimated by Jubb, from a study of the records of the Ministry of Health in London (Report of the Committee on Vaccination, Ministry of Health, London, His Majesty's Stationery Office, 1928), to be of the order of 1 in 100,000 vaccinations. It occurs between the 9th and the 14th day as a widespread papular rash which later vesiculates. This condition is fatal on occasions and might lead to vaccinia gangrenosa—apparently due to inability of the patient to develop antibodies against the vaccinia virus—which almost invariably ends in death. The reasons for the spreading of the virus in generalized vaccinia are unknown but seem to depend on a personal idiosyncrasy of the patient (Scott, Viral Infections, in Nelson, Textbook of Pediatrics, Philadelphia, W. B. Saunders Company, 1954).

Concerning the queries, under normal circumstances it appears that this child should not be revaccinated, since there is evidence of his sensitivity to the vaccine. Weighing the risks of having a serious complication, which might be fatal, against the practically nonexistent chances of acquiring smallpox in the United States, abstention appears to be a sound procedure. An interesting problem would occur if, in the years to come, this child were to come in contact with a patient with smallpox. At that moment the situation should be reevaluated on its own merits, and either vaccination or the administration of specially prepared gamma globulin from a pool of recently vaccinated adults could be considered.

SERUM CHOLESTEROL LEVEL AND INFERTILITY

To the Editor:—*What is the significance of slight elevation (up to 300 mg.%) of the serum cholesterol level in otherwise healthy males, aged 25 to 35 years, seeking treatment for infertility? These elevations are present without any change in the protein-bound iodine levels. What can be used to decrease the cholesterol level?*

Murray Russell, M.D., Garden Grove, Calif.

Answer.—Nothing is known of a relationship between a slight elevation of the serum cholesterol level and infertility. The condition may, however, reflect a subclinical thyroid insufficiency, which should be looked for and, if present, corrected. Laboratory studies indicate that the serum cholesterol level can be reduced either by lowering the total intake of food calories or by increasing the relative proportion of unsaturated to saturated fats in the diet. Such dietary treatment, however, is scarcely indicated in the cases cited.

Answer.—Increased cholesterol level is indicative of defective fat metabolism in the liver or elsewhere or poor fat uptake by the thyroid. The protein-bound iodine test relates to iodine metabolism by the thyroid. Fat metabolism may be deranged even though protein-bound iodine values are normal. While thyroid function is vital in fertility, there is no evidence that defects in cholesterol metabolism are incompatible with fertility. It may be possible to reduce the cholesterol level by giving thyroid extract, starting with small doses, ¼ to ½ grain (15 to 30 mg.) daily, and increasing the dosage carefully as required and as tolerance permits.

TREATMENT OF SNAKE BITE

To the Editor:—*Last summer an 8-year-old girl, on vacation, was bitten by a rattlesnake. Prompt incision of the wound with a razor blade and mouth suction to remove the venom was done immediately by her father. Antisnakebite serum was administered by a tourist physician, a package of serum having been left some years previously by a tourist at the general store near by. The child was then taken to a hospital, where an additional injection of serum was given. She suffered no ill effects from the snake bite, but she did suffer severely from serum-sickness and was rehospitalized as a result. Will there be any residual immunity from the serum she has taken, in the event she should again be bitten by a rattlesnake? If not, should another injection of the antivenom be given? It appears that her reaction is to the horse serum. Are there any preparations manufactured that do not use horse serum? If it is necessary to reinject one of the standard antivenom preparations, what is the best treatment for the serum sickness if it occurs?*

Walter H. Sisson, M.D., Portsmouth, Ohio.

Answer.—The treatment of venous snake bites continues to be a controversial subject. The injection of antivenin produces only a passive immunity during which the venom is neutralized. The benefits of the antivenin are transient, since the serum is destroyed in the body within a relatively short period of time. If a person is bitten again, it is necessary to repeat antivenin therapy. However, it is important to determine if envenomation has taken place. This can best be judged by the development of local and general symptoms. A bite from a rattlesnake does not necessarily indicate that antivenin therapy should be given. There is only one antivenin produced in the United States and it is made from horse serum. It is said to be effective against rattlesnake, water moccasin, or cottonmouth bites. There is no antivenin available in this country against the coral snake. Copperhead bites are seldom serious enough to justify antivenin therapy.

The following recommendations have been gleaned from a large number of clinical reports by expert venomologists, and they represent a conservative and effective approach to the treatment of venomous snake bites.

1. Upon being bitten the victim should remain as inactive as possible. Exercise increases the circulation and facilitates distribution of the poison throughout the body.

2. A tourniquet should immediately be applied about 2 in. proximal to the bite. It should be sufficiently loose to permit a finger beneath it, and one should be able to palpate the pulse beneath. If the affected part turns cyanotic, the tourniquet is too tight and should be loosened for about 20 seconds every 15 minutes.

3. Antivenin should be administered as soon as possible if there is symptomatic evidence of envenomation. Give full dosage; do not give divided doses over a period of time. If the person has been severely intoxicated, the antivenin should be given intravenously. If envenomation is only moderate, antivenin should be given subcutaneously. Directions provided by the manufacturer of the antivenin should be carefully followed.

4. The administration of cortisone either prior to or concurrently with the antivenin is said to be useful in reducing the effects of serum sickness. Immediate control can generally be accomplished with the use of epinephrine, which should be available at the time the antivenin is administered. Snake bites are generally contamined wounds. Tetanus antitoxin and antibiotics are indicated.

Some workers claim to have obtained excellent results with cryotherapy by immersing the affected part in iced water for extended periods of time, which may vary from several hours to several days, depending upon the severity of the bite. Freezing of the tissues must be avoided. The trend is definitely away from incision and suction.

LACTIC ACID BACILLI IN COW'S MILK

To the Editor:—*What is the source of the lactic acid bacilli in cow's milk? Are they present within the udder or do they gain access in the process of milking and later handling? Is it theoretically possible to obtain sterile cow's milk by careful avoidance of contamination?*

M.D., California.

Answer.—Apparently, lactic acid bacteria are present in the milk as it comes from the cow. They do not generally gain access in the milking and later handling. Early in the history of bacteriology it was thought that milk was sterile when it came from the udder. However, there have been many studies since then showing that in aseptically drawn samples of milk there is an average of 25,000 bacteria per milliliter (Thaunton and Strynadka, Annual Report of the International Association of Dairy and Milk Inspection, 1934).

URGE TO INHALE GASOLINE FUMES

To the Editor:—*A 5-year-old boy has an uncontrollable urge to inhale gasoline fumes. If unnoticed, he will inhale these fumes until he falls unconscious on the ground, and, when brought into the house, he will sleep as long as two hours. When he awakens he is hungry and appears to be no worse for the experience. If he is detected inhaling the fumes he will run and hide. Corporal punishment has done no good. This patient is well developed in every way except for a moderate speech defect. What harm, if any, can result from inhaling gasoline fumes? Would psychiatric consultation be advised?*

A. C. Scott, M.D., Evansville, Ill.

Answer.—This child's urge to inhale gasoline fumes would seem to have the same general significance as that of the adult (or child) who subjects himself, compulsively, to intoxication with alcohol, ether, or certain other narcotic or anesthetic substances. The repetitive experience may become an addiction. Psychiatric consultation is certainly indicated if wise parental guidance or discipline fail. An episode of sublethal intoxication from a present-day gasoline, while usually without important sequelae, cannot be counted on to be harmless. Certainly, recurrent bouts of intoxication should be avoided, especially in view of the occurrence of appreciable quantities of aromatic hydrocarbons in many commercial gasolines. These compounds, which are generally more toxic than straight or branched chain hydrocarbons, derive largely from modern technological processes in the petroleum industry, and, while a number of the aromatic components of gasoline in pure form, e. g., toluene, ethylbenzene, and cumene, have little or no specific effect on the blood forming tissues, benzene (C_6H_6), which may comprise as much as 6 or 7% of the volume of the gasoline, may conceivably occur in vaporized gasoline in sufficient concentration to exert its injurious effects. The risk associated with mild gasoline intoxication in the case of this child may well be moderate, but the difference between concentrations of gasoline that are capable of inducing unconsciousness, on the one hand, and fatal narcosis, on the other, is not so great as to be evident either to the child or to other observers. This situation, therefore, is one which may have a tragic outcome.

Answer.—This consultant cannot comment on the physical effects of inhalation of gasoline fumes; it is definitely a psychiatric symptom and may be considered a perverse activity. The child obviously receives gratification, and the activity is of an impulsive and compulsive nature. The pleasure is anal-erotic. To a degree this is found in all children and adults, but for an emotional reason it has become exaggerated in this case. A full psychiatric evaluation would, no doubt, elicit other additional psychiatric symptoms.

VESICULAR AND BULLOUS DISEASE

To the Editor:—*Please suggest effective management for a case of porphyria cutanea tarda. A middle-aged woman is in her first acute episode; she has had countless large and small blisters on the exposed areas of her neck and upper extremities. A moderate dose of cortisone had the surprising effect of clearing the areas involved with small vesicles, but apparently it did not affect the development of large bullae. Therapy with all incidental medicaments which might have influenced the onset has been discontinued.*

Leonard Nelken, M.D., Clinton, Iowa.

Answer.—It would have been of immeasurable value to have had a more complete history and a statement of the methods used in arriving at this diagnosis. Have each of the vesicular and bulbous-producing diseases, such as pemphigus and dermatitis herpetiformis, been eliminated? Is there a history of taking chloroquine phosphate, sulfanilamide, or any of the oral antidiabetic preparations? Is there a history of alcohol consumption? The laboratory findings would also be of value. Clinically, is there any evidence of melanosis, hypertrichosis, anemia, abdominal nervous symptoms, and a purplish hue of facies? The patient with photosensitive and chronic disease must be protected from strong sunlight by both chemical and chemicomechanical means. Total abstinence from use of alcohol, barbiturates, and arsenic is also necessary. Such drugs as chlorpromazine hydrochloride, other phenothiazine derivatives, and promethazine hydrochloride, which are photosensitizers, must be prohibited.

ALLERGY TO HARD-SHELLED CLAMS

To the Editor:—*Whenever a patient eats hard-shelled clams (quahogs) he develops cramps within two hours after ingestion. The cramps are severe, constant, limited to the epigastrium, and can be relieved only by induced vomiting. The patient can eat other fish and shellfish, such as soft-shelled clams, lobsters, oysters, and scallops, without ill-effect. What is the ingredient present in quahogs, and not in the other types of shellfish, which gives this reaction? Ingestion of little necks (the baby quahogs), or of a single clam will produce the symptoms.*

Edward Damarjian, M.D., Providence, R. I.

Answer.—Quahogs (Venus mercenaria), soft shelled clams (Mya arenaria), and scallops (of the suborder Pectinacea) all belong to the large biological class of Lamellibranchia, of which there are 7,000 species and more than 100 families. The smallest is one millimeter in size, and the largest, Tridacna gigas, itself weighs 20 lb. and possesses a shell weighing over 500 lb. All three belong to different suborders, as does the oyster.

There are three problems involved. First, is this a form of allergy? Although skin tests are routinely negative unless other organs participate with the gastrointestinal tract in the symptoms, nevertheless, the syndrome described with or without diarrhea is so clearly defined and so often seen that no other term is applicable.

In some patients the problem, of course, is that the cause may not be the quahog alone. It is sometimes eaten raw with a spiced tomato sauce, horseradish, and other allergenic foods or spices which may be gastric irritants, although there are cases when this does not hold, as in quahog chowder (the clam chowder of commerce), but here again other ingredients may be responsible for the gastrointestinal symptoms.

The third aspect of the problem is the most puzzling and one to which there is no present answer. Sensitivity can be specific or else quite general. Examples are seen of sensitivity to one type of fowl, as chicken but not turkey or pheasant, although some patients can tolerate no avian meat. Analgous is the patient sensitive to one fur-bearing animal as compared to others sensitive clinically to all animal danders. Similarly, sensitivity may exist to one sulfonamide and not to others or to all derivatives of sulfanilic acid. This is also true of tetracyclines. It would be best for the patient to avoid quahogs, especially since he can enjoy so many other types of shellfish.

CONSTANT TWITCHING OF EYE

To the Editor:—*A woman has had a constant twitching of her right eye and the entire side of her face, including brow and cheek. She states this is relieved when she removes her glasses and retires at night but recurs when she arises in the morning. An ophthalmologist could not find any relationship between her glasses and the twitching. Therapy with tincture of gelsemium was given after other antispasmodics were tried, but as much as 24 drops has produced no drooping or relief. In March, 1958, a facial nerve was injected with procaine hydrochloride, and Solu-Zyme was given intravenously, but to no avail. Is there any other medication that might relieve this twitching?*

Kenneth A. Ohme, M.D., Mitchell, Neb.

Answer.—The data supplied by the questioner are inadequate to make a definitive diagnosis as to the cause of this patient's facial twitching. So-called essential facial spasm may be responsible for her symptoms. In this condition irritative processes, as a result of old inflammation in the facial nerve as it passes through the facial canal, may be responsible and may be relieved partially and temporarily by operative decompression of the nerve. Recurrences after such operations are common (Williams and others, Ann. *Otol. Rhin. & Laryng.* 61:850, 1952). On the other hand, it is notorious that such symptoms may occur in the form of a hysterical tic, and careful and prolonged clinical observation of the patient may be necessary to distinguish between these two conditions. If the disturbance is indeed hysterical, psychotherapy is, of course, the treatment of choice, but such tics are uniformly resistant to psychotherapy. Drug therapy in that case is apt to be of no avail, but one might try reserpine in moderate doses or chlorpromazine, 50 mg. three times a day.

MYXEDEMA

To the Editor:—*In 1950, a 45-year-old man had exophthalmos, loss of weight, tachycardia, and palpitations. The diagnosis then was hyperthyroidism of diencephalohypophysial origin with edematous exophthalmos. In 1951, radiotherapy (4,000 r) of the hypophysial regions was done. In 1952, a fixation test with radioactive iodine (I^{131}) showed hyperfixation of I^{131} and hyperfunction of the thyroid up to maximal limits. In 1953, a single oral dose of I^{131} was given. Since 1955, the patient has complained of fatigue, headache, and vertigo. His basal metabolic rate has been —38%, and the cholesterol level has been 240 mg. per 100 cc. Thyroid treatment could not be given, since even a small dose produces palpitations and makes the condition worse. What therapeutic measures and further investigations should be done?*

Emile Quiring, M.D., Luxembourg, Belgium.

Answer.—It would seem from the data presented that the patient almost surely has myxedema. Confirmation of the diagnosis should be made by careful determination of the physical signs, by further studies of the basal metabolic rate, and by determination of the protein-bound iodine level of the blood. If the diagnosis of myxedema is confirmed, desiccated thyroid or thyroxin should be administered in a dose adequate to raise and hold the basal metabolic rate between —10% and zero. Untoward symptoms occurring during the early stages of treatment often subside after treatment has been carried out for a few weeks. Small doses of desiccated thyroid or thyroxin gradually increased may minimize untoward symptoms, and, in some instances of incomplete myxedema after treatment for toxic diffuse goiter (Graves' disease), the concomitant administration of iodine and desiccated thyroid appears to have been of help in this regard.

HYPERTRICHOSIS AND ACNE

To the Editor:—*Three different girls, in their late teens, have had excessive hairiness and acne of the face and trunk. These girls have had androgen excretion rates ranging from the upper limits of normal to 15 and 20 mg. per 24 hours. The 11-oxysteroids values have been normal (at the median of the upper and lower limits of normal). These girls have menstruated normally and regularly. Hypertrophied clitoris is not present, and libido has not been excessive. Histories and results of physical examinations were normal. Findings on all the usual laboratory examinations, such as blood cell count, blood sugar determination, glucose tolerance test, and blood cholesterol determination, have been negative. However, blood uric acid levels have been, interestingly enough, at the upper limits of normal, namely 5.5-6 mg. %. One patient said that her mother and sister have had excessive hairiness. Particular attention has been paid to other evidence of endocrine dysfunction; however, nothing of significance has been noted. What effective therapy could be given?* *M.D., Washington.*

Answer.—There is no reasonably effective treatment for the hypertrichosis in such patients. Some instances are familial, others are not. Facial hair can be removed by electrolysis. However, the acne should be brought under control first; otherwise, the electrolysis "wounds" might become secondarily infected. The acne can be treated best by a dermatologist with x-ray therapy, local remedies, and dietary control. Treatment with estrogens has been disappointing in the experience of this consultant in patients with acne with or without hypertrichosis. As far as is known, the blood uric acid findings are not significant in the etiology or treatment of the hypertrichosis and/or the acne.

REACTION TO DIETHYLSTILBESTROL

To the Editor:—*A patient has proved carcinoma, grade 2, of the prostate. He receives a pill containing 100 mg. of diethylstilbestrol, 667 mg. of ascorbic acid, and 10 mg. of riboflavin three times a day. Could this treatment produce night sweats and dizziness?*

A. L. Henrichsen, M.D., Van Nuys, Calif.

Answer.—A dosage of 100 mg. of diethylstilbestrol is unnecessarily large for therapy for carcinoma of the prostate. It is open to question whether large attention to a possibility of increasing social security taxes to finance purchase of health insurance at the time of retirement. The study is under way.

THREE NEW MAJOR APPOINTMENTS IN HEALTH FIELDS

Three major health appointments in the federal government have been made in recent days.

Major Gen. Oliver K. Niess takes over as surgeon general of the Air Force Dec. 1, succeeding Major Gen. Dan C. Ogle, who is retiring after nearly 30 years of service. General Niess is now command surgeon of the Pacific Air Forces in Hawaii; in this post he was instrumental in establishing medical care for U. S. nationals throughout Southeast Asia. Under General Ogle, the Air Force set up the Aeromedical Research Center at Brooks Air Force Base and constructed 170 new medical facilities worldwide.

Dr. W. Palmer Dearing has been named director of health services for the newly merged Office of Civil and Defense Mobilization. Prior to the reorganization he had been assistant director for health in the Office of Defense Mobilization, which Congress last session merged with the Federal Civil Defense Administration. Dr. Dearing's office will be the focal point for health activities remaining in the new agency; many will be shifted to Public Health Service.

Dr. H. Van Zile Hyde has been named assistant to the surgeon general of the Public Health Service for international health and will serve as chief advisor to the surgeon general on all international health affairs. His duties will include liaison with the State Department and other agencies concerned with international health, and he will continue to represent the U. S. on the executive board of the World Health Organization. Dr. Hyde has been chief of the division of international health for the last five years.

That post has been filled by Dr. Horace DeLien, who has directed the health program of the International Cooperation Administration in the Philippines for seven years.

NEW URANIUM ISOTOPE STANDARDS DRAWN

National Bureau of Standards in cooperation with Atomic Energy Commission has prepared the first in a series of uranium isotopic standards for use by educational and research institutions and industry in the U. S. and abroad. Ten standard uranium isotopic samples became available Oct. 1 from the bureau, and 5 more uranium standards are in preparation to make a series of 15.

"Standards for other atomic energy materials such as plutonium and thorium will be made available under a continuing program designed to provide materials of known certified composition which will be universally acceptable as analytical standards," a joint statement declared.

In a separate announcement, AEC told for issuance of a regulation effective Nov. 3 is designed to assure suitable precautions in shipment of special nuclear material. AEC there would be no bomb-like explosion in accidents; there could be cases of spread of ra active material.

CIGARETTE CLAIMS BARRED BY FTC

A five-year-old case between the Federal T Commission and Liggett & Myers Tobacco Co. advertising claims of Chesterfield cigarettes been concluded. FTC's final order forbids that the cigarettes are "milder," that they have adverse effect upon the nose, throat, or acces organs," and that they are "soothing and relax

A FTC hearing examiner a year ago had rec mended that the claims of milder, soothing relaxing be allowed. The commission, on the hand, cited unanimous testimony of experts various fields of medicine that cigarette smoke "an irritant capable of affecting adversely to extent" nose, throat, or accessory organs.

On the claim of soothing and relaxing, FTC this effect depended on the smoker. For habi smokers, it said, a cigarette may afford "some te porary palliation of tension" but that this was so for all smokers of cigarettes. The said the term milder was meant to convey in its physiological connection rather than in nection with such sensory feelings as taste or sme

PAN AMERICAN HEALTH PLANS FOR 19

Latin American public health programs for 19 will total 10,600,000 dollars plus any additio donations to the malaria eradication fund. Th budget was approved at the recent Pan Americ Sanitary Conference held in Puerto Rico. D were announced by the Pan American Sanita Bureau in Washington.

The conference actually adopted a budget of 3,600,000 dollars. Added to this will be about 7 mil lion dollars of World Health Organization an United Nations Technical Assistance funds. In a there are about 125 health programs underway or planned. Other conference developments:

The policy-making Pan American Sanitary Or ganization voted to change its name to Pan Ame can Health Organization on the theory that it "mor accurately describes the character of the organiza tion and its functions in the broad field of publ health." The name of the operating agency, Pa American Sanitary Bureau, remains unchanged.

An encouraging report on progress made in the last four years in malaria eradication was presente by Dr. Carlos A. Alvarado, PASB's malaria erad cation chief. As of July 31, all but two countries programs are underway. Eradication had bee achieved in the U. S., Chile, Puerto Rico, and the West Indian islands of Barbados and Martinique

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Administration Revives Interest in U. S. Aid to Medical Schools . .

AFL-CIO Will Fight for Forand Bill Again Next Year in Congress . .

New Uranium Isotopic Standards for Institutions Drawn by U. S. . .

Latin America to Spend $10.6 Million on Public Health in 1959 . .

ADMINISTRATION SHOWS NEW INTEREST IN AID TO MEDICAL SCHOOLS

The administration is making new moves in the field of aid to medical schools. Secretary Flemming of the Department of Health, Education, and Welfare has approved the formation of an advisory committee to the Public Health Service on medical education. National leaders in medicine, education, and public affairs are being invited to serve. PHS Surgeon General Leroy Burney explains it this way:

"I do not anticipate just 'another study.' Instead I would expect the group to appraise the existing data, plans, and proposals concerned with our medical schools and the nation's needs for physicians; to sift out the areas of agreement and the areas that require further study; and to recommend the action which all groups must take to achieve reasonable and acceptable goals in the next decade."

Dr. Burney said he would like especially to have the advice of such a group as to the proper role of the PHS and the next steps the agency should take. He disclosed plans for the committee in the 13th Martin Memorial Lecture to the American College of Surgeons.

Claiming a financial crisis for medical schools goes back to the end of World War II, Dr. Burney declared: "The central imperative of these observations is that the nation must plan and act as a nation in the development of health manpower. In the complex society of today, in a period of world crisis, health and educational services can be no more be left to chance or exclusively to local initiative than can the development of heavy industry, consumer goods, transportation, public utilities, and national defense."

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EXAMINATIONS FOR SCHOOL CHILDREN

To the Editor:—*Concerning the Question and Answer on examinations for school children, which appeared in* The Journal *for Aug. 2, 1958, page 1802, I would like to mention that in about 13,000 school children tested with intermediate strength tuberculin, a reactor rate of 1.7% occurred. The consultant did not specify the use of the patch test, but as long as one is going to go to the trouble of testing one might as well do a good job of it and use intermediate strength tuberculin.*

Garold L. Faber, M.D.
315 Wall St.
Chico, Calif.

The above comment was referred to the consultant who answered the original question, and his reply follows.—Ed.

To the Editor:—*Assuming that the 13,000 tuberculin tests were applied to children of grade school age, from 6 to 14 years, a reactor rate of 1.7% is smaller than has usually been reported in cities. It compares more favorably with testing in rural communities where there has been a good sanatorium system, control of tuberculosis among cattle, and an educational program in effect for several decades. In some such areas, testing now reveals no reactors among grade school children. Even with this low percentage of reactors, over 200 were found who have been in contact with persons with contagious disease and who themselves have lesions containing living tubercle bacilli. Each of these children has a potential for clinical tuberculosis at some subsequent time. Therefore, the effort in testing has paid good dividends and will continue to do so if an attempt is made to find the adult associates who infected the children and also if the children are examined periodically to detect clinical lesions which may evolve while they are small, noncontagious, and easily treated. The percutaneous method of administration of tuberculin, now known as the patch test, has been in use since 1908. The comparative study of Lovett* (Am. J. Dis. Child. 37:918, 1929) *showed that it is equal to or better than the epidermal method of Pirquet. The percutaneous method became popular after Vollmer and Goldberger developed a technique for its easy and fast administration; they named it the patch test. Since then, numerous comparative studies have been made which have resulted in a general belief that the patch test is equal to the usual first dose of old tuberculin or the purified protein derivative of tuberculin. Recent converters to tuberculin usually present a high degree of allergy, and, therefore, it is detected by these first test doses. This applies to both children and adults. However, when infections are of long standing and there has been no reinfection to maintain allergy at a high degree, it may wane to such a low level that it is missed by the usual first dose and the patch test. A preponderance of physicians administering the tuberculin test prefer the intracutaneous method. However, there are circumstances and situations under which it is more feasible to administer the patch test. This seems far better than to omit the tuberculin test. A number of workers have advocated doses of tuberculin intermediate between the usual first and second, such as 0.1 cc. of a dilution of 1:500 of old tuberculin. A large study initiated and promoted by Dr. C. E. Palmer and co-workers of the U. S. Public Health Service on an intermediate dose of purified protein derivative of tuberculin, consisting of 0.0001 mg. expressed as 5 international tuberculin units (TU), should produce information as to whether this is a dose that can be recommended as standard for tuberculin testing everywhere.*

FIRE HAZARDS OF VAPORIZED ALCOHOL

To the Editor:—*A Question and Answer on fire hazards of vaporized alcohol appeared in the Aug. 23, 1958, issue of* The Journal, *page 2154. The statement that no explosions are known to have occurred due to ignition of the alcohol-oxygen vapor prompts me to call attention to another explosion hazard. Several years ago I treated a patient with pulmonary edema by bubbling oxygen through rubbing alcohol (70% ethyl alcohol), administering this by tent. A rather violent explosion occurred, showering glass around the room, the hall, and into a patient's room across the hall. No one was injured. The reason for it apparently was that the rubbing alcohol contained material which solidified in the outlet of the hydrating bottle, and, when this had been blocked, the pressure in the glass bottle increased to approach that in the oxygen tank.*

W. Harding Kneedler, M.D.
Concord, N. C.

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Administration Revives Interest in U. S. Aid to Medical Schools . .

AFL-CIO Will Fight for Forand Bill Again Next Year in Congress . .

New Uranium Isotopic Standards for Institutions Drawn by U. S. . .

Latin America to Spend $10.6 Million on Public Health in 1959 . .

ADMINISTRATION SHOWS NEW INTEREST IN AID TO MEDICAL SCHOOLS

The administration is making new moves in the field of aid to medical schools. Secretary Flemming of the Department of Health, Education, and Welfare has approved the formation of an advisory committee to the Public Health Service on medical education. National leaders in medicine, education, and public affairs are being invited to serve. PHS Surgeon General Leroy Burney explains it this way:

"I do not anticipate just 'another study.' Instead I would expect the group to appraise the existing data, plans, and proposals concerned with our medical schools and the nation's needs for physicians; to sift out the areas of agreement and the areas that require further study; and to recommend the action which all groups must take to achieve reasonable and acceptable goals in the next decade."

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THREE NEW MAJOR APPOINTMENTS IN HEALTH FIELDS

Three major health appointments in the federal government have been made in recent days.

Major Gen. Oliver K. Niess takes over as surgeon general of the Air Force Dec. 1, succeeding Major Gen. Dan C. Ogle, who is retiring after nearly 30 years of service. General Niess is now command surgeon of the Pacific Air Forces in Hawaii; in this post he was instrumental in establishing medical care for U. S. nationals throughout Southeast Asia. Under General Ogle, the Air Force set up the Aeromedical Research Center at Brooks Air Force Base and constructed 170 new medical facilities worldwide.

Dr. W. Palmer Dearing has been named director of health services for the newly merged Office of Civil and Defense Mobilization. Prior to the reorganization he had been assistant director for health in the Office of Defense Mobilization, which Congress last session merged with the Federal Civil Defense Administration. Dr. Dearing's office will be the focal point for health activities remaining in the new agency; many will be shifted to Public Health Service.

Dr. H. Van Zile Hyde has been named assistant to the surgeon general of the Public Health Service for international health and will serve as chief advisor to the surgeon general on all international health affairs. His duties will include liaison with the State Department and other agencies concerned with international health, and he will continue to represent the U. S. on the executive board of the World Health Organization. Dr. Hyde has been chief of the division of international health for the last five years.

That post has been filled by Dr. Horace DeLien, who has directed the health program of the International Cooperation Administration in the Philippines for seven years.

NEW URANIUM ISOTOPE STANDARDS DRAWN

National Bureau of Standards in cooperation with Atomic Energy Commission has prepared the first in a series of uranium isotopic standards for use by educational and research institutions and industry in the U. S. and abroad. Ten standard uranium isotopic samples became available Oct. 1 from the bureau, and 5 more uranium standards are in preparation to make a series of 15.

"Standards for other atomic energy materials such as plutonium and thorium will be made available under a continuing program designed to provide materials of known certified composition which will be universally acceptable as analytical standards," a joint statement declared.

In a separate announcement, AEC told of plans for issuance of a regulation effective Nov. 3. This is designed to assure suitable precautions are taken in shipment of special nuclear material. AEC said there would be no bomb-like explosion in such accidents; there could be cases of spread of radioactive material.

CIGARETTE CLAIMS BARRED BY FTC

A five-year-old case between the Federal Trade Commission and Liggett & Myers Tobacco Co. over advertising claims of Chesterfield cigarettes has been concluded. FTC's final order forbids claims that the cigarettes are "milder," that they have "no adverse effect upon the nose, throat, or accessory organs," and that they are "soothing and relaxing."

A FTC hearing examiner a year ago had recommended that the claims of milder, soothing, and relaxing be allowed. The commission, on the other hand, cited unanimous testimony of experts in various fields of medicine that cigarette smoke was "an irritant capable of affecting adversely to some extent" nose, throat, or accessory organs.

On the claim of soothing and relaxing, FTC said this effect depended on the smoker. For habitual smokers, it said, a cigarette may afford "some temporary palliation of tension" but that this was not so for all smokers of cigarettes. The commission said the term milder was meant to convey milder in its physiological connection rather than in connection with such sensory feelings as taste or smell.

PAN AMERICAN HEALTH PLANS FOR 1959

Latin American public health programs for 1959 will total 10,600,000 dollars plus any additional donations to the malaria eradication fund. This budget was approved at the recent Pan American Sanitary Conference held in Puerto Rico. Details were announced by the Pan American Sanitary Bureau in Washington.

The conference actually adopted a budget of 3,600,000 dollars. Added to this will be about 7 million dollars of World Health Organization and United Nations Technical Assistance funds. In all there are about 125 health programs underway or planned. Other conference developments:

The policy-making Pan American Sanitary Organization voted to change its name to Pan American Health Organization on the theory that it "more accurately describes the character of the organization and its functions in the broad field of public health." The name of the operating agency, Pan American Sanitary Bureau, remains unchanged.

An encouraging report on progress made in the last four years in malaria eradication was presented by Dr. Carlos A. Alvarado, PASB's malaria eradication chief. As of July 31, all but two countries' programs are underway. Eradication had been achieved in the U. S., Chile, Puerto Rico, and the West Indian islands of Barbados and Martinique.

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ECTOPIC PREGNANCY—ANALYSIS OF THREE HUNDRED TWENTY-TWO CONSECUTIVE CASES, 1935-1954

George D. Malkasian Jr., M.D., James S. Hunter Jr., M.D.
and
William H. ReMine, M.D., Rochester, Minn.

Factors determining the incidence and course of ectopic pregnancy were studied by comparing 161 cases encountered during the 10-year period 1935-1944 with 161 encountered during the period 1945-1954. The initial complaint was abdominal pain in 38.5% and vaginal bleeding in 36.4% of the entire group; in 24% the initial complaint was simultaneous abdominal pain and vaginal bleeding. False-positive and false-negative diagnoses were frequent. Negative results from pregnancy tests were of no value in eliminating the possibility of ectopic pregnancy, and positive results did little to confirm it. Dilatation and curettage, had this procedure been performed for diagnostic purposes in all patients suspected of ectopic pregnancy, would have interrupted 18 intrauterine pregnancies that later reached term. Comparing the experience of the first with the second 10-year period showed that during the latter the surgery was in general more conservative, that blood transfusions were used more liberally, and that more women had subsequent pregnancies. No maternal deaths occurred in the last 12 years of the study.

IN THIS day of adequate blood transfusions, antibiotics, and good preoperative and postoperative care, ectopic pregnancy continues to be a cause of maternal mortality in the United States. In a recent study of maternal mortality in Minnesota, it was accounted responsible in 2.2% of the obstetrically caused maternal deaths.[1] In view of this fact, continual review of experience with ectopic pregnancy is warranted.

For this reason we have studied the experience with ectopic pregnancies at the Mayo Clinic for the 20-year period 1935 through 1954. The information presented has been obtained from study of the case records of patients given the diagnosis of ectopic pregnancy, made on clinical or pathological grounds or on both. The data have been compiled in two groups representing 10-year periods, the first 1935 through 1944 and the second 1945 through 1954. This was done so that we might (1) survey the pattern of the ectopic pregnancies in the two periods and (2) evaluate our therapeutic measures before and after antibiotics and blood transfusions became readily available.

The first 10-year period included 161 pathologically proved ectopic pregnancies, and the second 10-year period likewise included 161 pathologically proved cases. Sixteen women had two ectopic pregnancies treated at the clinic during the period of this study; therefore the total of 322 pathologically proved ectopic pregnancies occurred in 306 women.

From the Section of Obstetrics and Gynecology (Drs. Malkasian and Hunter), and the Section of Surgery (Dr. ReMine), Mayo Clinic and Mayo Foundation. The Mayo Foundation is a part of the Graduate School of the University of Minnesota. Dr. Malkasian is a Fellow in Obstetrics and Gynecology, Mayo Foundation.

Read before the Section on Obstetrics and Gynecology at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

The incidence of ectopic pregnancy per total number of deliveries at the Charity Hospital in New Orleans[2] has been stated as 0.6 to 0.9%. During the first 10-year period of our study there was a total of 6,373 deliveries and 161 ectopic pregnancies for an incidence of 2.5%. In the second 10-year period there was a total of 14,224 deliveries and 161 ectopic pregnancies for an incidence of 1.1%. The high incidence of ectopic pregnancy may be accounted for by the large number of referred cases.

TABLE 1.—*Age of Patients with Ectopic Pregnancy*

	1935-1944		1945-1954	
Age, Yr.	No.	%	No.	%
20 or less	4	2	3	2
21-30	82	51	75	47
31-40	67	42	78	48
41 or more	8	5	5	3
Total	161	100	161	100
Average age	30.7		30.6	

The ages of the patients in the earlier group ranged from 17 through 47 years and in the later group from 17 through 42 years. The distribution of ages in the two groups of patients is shown in table 1. The average ages for the two groups are practically identical.

The parity of the patients at the time of the ectopic pregnancies is shown in table 2. In both groups the largest percentage were nulliparous women; they and primiparas were a majority in each group. The averages of parity in the two groups are practically the same.

Of the 161 patients in the earlier group, 39 stated that they had had one or more abortions. Of these, 28 reported one abortion, 9 reported two, and 2 reported five abortions each. Of the 161 patients in the second period, 45 stated that they had had one or more abortions. Of these patients, 30 had aborted once, 11 had aborted twice, 3 had aborted three times, and 1 had aborted four times. Thus the percentage of patients who had abortions in the two groups was, respectively, 24.2 and 27.9. Randall and co-workers[3] reported a 5.5% incidence of abortion in the group they studied but stated that other authors have expressed the opinion that 20% of all pregnancies terminate before the child is viable.

Diagnostic Factors and Decisions

Initial Complaints.—In our series, as in others, the most frequent initial complaint was abdominal pain. In the entire group 38.5% had abdominal pain alone as the initial complaint, 36.4% complained of vaginal bleeding initially, and 24.2% listed simultaneous vaginal bleeding and abdominal pain as their initial complaint. Only 0.6% (two patients) had no symptoms—that is, the ectopic pregnancy was found incidentally at the time of operation for some other condition—and one patient went into shock without any symptom prior to that.

A symptom frequently mentioned as present in ectopic pregnancy, although not initially, is shoulder pain. In our series it was present among 15.2% of the patients by the time of operation.

Diagnostic Procedures.—For this discussion, diagnostic procedures may be divided into two types: laboratory and surgical. Laboratory procedures performed routinely were urinalysis and studies of blood components (hemoglobin level, leukocyte count, differential leukocyte count, and blood group). Occasionally sedimentation rates were checked and pregnancy tests were done. In the period of awareness of the Rh factor, Rh-positive blood was not given to any of these patients before a test for presence of the factor.

We would like to emphasize at this point the necessity of testing for the Rh factor in such patients before any blood is given. It cannot be stressed too often because we still are seeing Rh-negative patients who have received Rh-positive blood without previous test for this factor. Those who have become sensitized thus have had their obstetric future jeopardized.

Twenty-four tests for pregnancy were made in the earlier group, with positive results in 70.8%, and 29 tests in the later group, with positive results in 41.4%. In all the cases in which results from the pregnancy tests were positive, the ectopic pregnancy had been suspected clinically before the test was made. We believe it can be said fairly that a negative result from a pregnancy test is of no value in ruling out an ectopic pregnancy and, furthermore, that a positive result from a pregnancy test does little to confirm the diagnosis. The latter is true because the positive test merely confirms the presence of living chorionic villi able to produce chorionic gonadotropin which has entered the maternal blood stream. The test is of no aid in differentiating an ectopic from an early intrauterine pregnancy.

TABLE 2.—*Parity at Time of Ectopic Pregnancy*

	1935-1944		1945-1954	
Para	No.	%	No.	%
0	64	39.8	57	35.4
1	46	28.6	45	27.9
2	24	14.9	28	17.4
3	13	8.1	15	9.3
4	2	1.2	5	3.1
5	1	0.6	3	1.9
6	2	1.2	3	1.9
7	3	1.9	1	0.6
10	...	...	1	0.6
Not stated	6	3.7	3	1.9
Total	161	100.0	161	100.0
Average parity	1.14		1.36	

In the first group 26 patients and in the second group 33 patients had hemoglobin levels of less than 10 Gm. per 100 ml. of blood. Of each group, 19% were admitted in shock; and all of these who had had hemoglobin tests made before transfusions fell into the group with levels less than 10 Gm.

Other diagnostic aids used—dilatation and curettage, peritoneoscopy, and colpotomy—were of a surgical nature. Opinions expressed in the literature varied concerning the value of dilatation and curettage. Beacham and associates [2] did not recommend endometrial biopsy and dilatation and curettage in the diagnosis of ectopic pregnancy, whereas Campbell [4] said that dilatation and curettage often is of aid in establishing the correct diagnosis. It must be admitted that if decidual reaction is seen in the endometrium at the time of preliminary dilatation and curettage, the procedure is of use in confirming the diagnosis. Findings from the preliminary dilatation and currettage employed in our series are indicated in table 3. The diagnosis of ectopic pregnancy had been made in all these cases before the dilatation and curettage was performed. In the earlier group, 3 (13.6%) of the 22 instances of endometrial curettage produced evidence of decidual reaction. In the later group, 7 (22.6%) of 31 instances of dilatation and curettage disclosed decidual reaction in the endometrium. This gives an over-all figure of 10 of 53 cases for an incidence of 18.9%. It indicates that dilatation and curettage gives diagnostic help in one of five cases.

TABLE 3.—*Findings at Preliminary Dilatation and Curettage*

	1935-1944	1945-1954
Decidual reaction	3	7
Early proliferative phase	1	9
Late proliferative phase	3	
Early secretory phase	8	3
Late secretory phase	1	5
Atrophic endometrium	1	
Hypertrophic endometrium	3	
Endometritis	1	
Not stated	1	7
Total	22	31

As can be seen from table 3, the two other common findings were early secretory phase and early proliferative phase of the endometrium, but the products of curettage ran the gamut of possibilities. In favor of the group who do not recommend dilatation and curettage were two cases (0.6% of the total series) in which simultaneous intrauterine and extrauterine pregnancies occurred. If dilatation and curettage had been employed, the intrauterine pregnancies would have been terminated; but, as it was, both of the patients were later delivered of normal full-term infants. Operations for the ectopic pregnancy had been performed at 8 weeks in one case and 12 weeks in the other without disturbance of the intrauterine fetuses.

In the earlier group, peritoneoscopy was performed as a diagnostic procedure in five cases, but, due to the difficulties involved, the procedure was abandoned. Posterior colpotomy then was adopted as a diagnostic aid, and at the same time it provided a means of approach to definitive treatment in a few patients. It was used as a primary approach for total salpingectomy in one patient in the early group and in nine in the later group; for partial salpingectomy in four in the later group; for bilateral salpingectomy in one in the early group; and as a diagnostic aid before laparotomy in one patient in the early and five in the later group. In each group, among the cases in which posterior colpotomy was employed, it was possible to accomplish the definitive procedure from that approach in two-thirds of the instances.

TABLE 4.—*Clinical Diagnosis of Ectopic Pregnancy*

Clinical Diagnosis	1935-1944	1945-1954
Ectopic pregnancy		
Proved to be such	123	122
Proved not to be such	69	32
Subtotal	192	154
Other diagnoses proved to be ectopic pregnancies	38	39
Total	230	193

Incidence of Diagnosis.—The summary of clinical diagnoses as compared with pathological diagnoses is shown in table 4. In the first decade the diagnosis was correct in a total of 123 of 230 cases, and in the second decade it was correct in 122 of 193 cases. Diagnostic accuracies up to 94% have been reported in the literature.[5] The high index of suspicion necessary to diagnose early ectopic pregnancy, with its often vague clinical picture, has contributed to the false-positive diagnoses shown. The 53% decrease in false-positive diagnosis in the later group has been brought about in part by the clinicians' willingness to observe patients for a longer period now that blood is readily available should it be needed.

The disposition of cases with final diagnoses other than the clinically suspected ectopic pregnancies is shown in table 5. In the earlier group nine patients were observed medically and in the later group six. The five full-term pregnancies, which in their early stages gave typical pictures of ectopic pregnancy, emphasize the importance of careful medical observation of patients who are suspected of having ectopic pregnancy and are in good condition. Surgical procedures were performed in 60 of the 69 cases difficult to diagnose in the first decade, and in 26 of the 32 such cases in the second.

TABLE 5.—*Disposition of Cases with Final Diagnoses Other Than Clinically Suspected Ectopic Pregnancy*

	1935-1944	1945-1954
Medical observation		
Spontaneous abortion later	6	4
Normal intrauterine pregnancy, delivery later	3	2
Surgical procedures		
Laparotomy	59	23
Colpotomy	1	3
Total	69	32

The pathological diagnoses in the 86 cases in which surgical treatment was used are shown in table 6. The main point of interest is that in the earlier and later groups 43.3% and 42.3%, respectively, had pathological conditions in the tubes. The intrauterine pregnancies shown in table 6 are additional to the 15 mentioned in the paragraph above as having been observed medically. The number of explorations with negative findings was small.

TABLE 6.—*Final Diagnoses Other Than Clinically Suspected Ectopic Pregnancy in Eighty-six Patients Treated Surgically*

	1935-1944	1945-1954
Tubal disease		
Infection	14	6
Hematosalpinx	12	5
Ovarian disease		
Ovarian cyst, twisted	...	1
Corpus luteum cyst, ruptured, hemorrhagic	5	1
Cyst, simple	3	...
Intrauterine pregnancy	8	3
Endometriosis	2	2
Degenerating fibroids	2	1
Hematocele	...	1
Acute appendicitis	2	1
Gangrenous epiploic tag	...	1
Kidney stone	1	...
Adhesions	2	...
Negative exploration		
Abdominal	9	2
Colpotomy	...	2
Total	60	26

After this brief survey of the cases clinically suspected of being ectopic pregnancy but pathologically proved to represent other conditions, by a reversal of viewpoint table 7 shows the 322 cases pathologically proved to be ectopic pregnancies with their previous clinical diagnoses. In the two decades, 76.4 and 75.8% of the ultimately proved cases had been suspected clinically. In each of the two groups, the second commonest diagnosis was pelvic tumor, and in each of these cases it was an adnexal mass that was described by the clinician.

Treatment

The treatment of ectopic pregnancies, it is universally agreed, is to prevent or stop hemorrhage. This means surgical intervention once the diagnosis has been made. A period of close observation must be urged, however, if the diagnosis is uncertain and the patient's condition is good.

Transfusions.—Interestingly, in light of the primary aim of preventing or arresting hemorrhage, 26 patients of each group were in shock when admitted. All of these patients were treated preoperatively with blood or plasma expanders or both. Besides this use in treatment of shock, transfusions were given as supportive measures. In the first 10-year period 43 patients (26.7% of the group) received some sort of treatment aimed at increasing the volume of circulating blood. They received from 1 to 4 units, the average being 1.47 units. In the second 10-year period 62 patients (38.5% of the group) received transfusions. The amounts ranged from 1 to 8 units, the average being 2.3 units for each patient so treated.

Surgical Measures.—The operations performed in the 322 cases of ectopic pregnancy are represented in table 8. It can be seen that 78.2% of the earlier group and 86.9% of the later group had conservative operations which did not interfere with reproductive abilities. Incision of the tubes as described by Tompkins [6] and salpingotomy as described by Stromme [7] were not employed among these. The lower half of the table shows the operations that left the patients unable to reproduce—21.8% of the earlier group and 13.1% of the later group. A brief survey is warranted of the case material concerning these patients and the reasons for the operations leading to their sterilization.

Conditions of Bilateral Salpingectomy.—In the earlier group 23 patients underwent bilateral salpingectomy. Their average age was 32 years. Among the 23, 9 patients at an average age of 33 years had no living children at the time of their operations. In the tube not involved in the ectopic pregnancy, however, 14 of the 23 patients had severe inflammatory disease, 4 had hematosalpinx, 2 had obstructing adhesions, and 1 had adenomyosis. In two cases no reason was listed for the removal of the second tube.

In the later group nine patients at an average age of 33 years underwent bilateral salpingectomy. One patient had no children at the time of operation. She was 28 years old and had had three previous prolonged hospitalizations for pelvic inflammatory disease. Of the nine patients just mentioned, six had inflammatory disease of the second tube, one had hematosalpinx, and one had obstructing adhesions of the second tube. The second tube was removed from one patient because it was adherent to an ovarian dermoid.

TABLE 7.—*Clinical Diagnoses in Surgically Proved Ectopic Pregnancies*

	1935-1944	1945-1954
Ectopic pregnancy	123 (76.4%)	122 (75.8%)
Other diagnoses		
Pelvic tumor	14	11
Fibroids	4	3
Menometrorrhagia	3	6
Ovarian cyst	2	10
Indeterminate abdominal pain	5	1
Appendicitis	4	...
Inflammatory process	3	2
Endometriosis and adenomyosis	1	5
Intrauterine death	...	1
Not stated	2	...
Total	161	161

Conditions of Hysterectomy.—In the earlier group the average age of the 12 patients who were treated by some form of hysterectomy was 31 years. Four patients with an average age of 34 years had no living children at the time of operation. In two, hysterectomy was performed because the ectopic pregnancy necessitated the loss of the second tube, the first having been removed previously. Three patients had multiple fibroids with menometrorrhagia. Two patients had chronic infection of the second tube. Hysterectomy was employed for the following reasons in one case each: extensive endometriosis involving both tubes, bilateral hydrosalpinx, massive pelvic abscess, obstruction of both tubes by adhesions from old peritonitis, and a large interstitial pregnancy in a 42-year-old patient, gravida 9, para 7.

In the later group the average age of the 12 patients having hysterectomy was 34 years. Five of them had no living children at the time, and their average age also was 34 years. For five patients this ectopic pregnancy necessitated the loss of the second tube, the first having been lost by three because of previous ectopic pregnancies and by two for unknown previous tubal disease. Three patients had extensive endometriosis and three had menometrorrhagia of such a degree that hysterectomy was thought warranted in all. One patient underwent total hysterectomy for epidermoid (squamous cell) carcinoma in situ of the cervix, and the ectopic pregnancy was an incidental finding at operation.

TABLE 8.—*Operative Procedures Employed in Ectopic Pregnancy*

Procedure	1935-1944	1945-1954
Unilateral salpingectomy		
Tube only	92	114
Tube and 1 ovary	32	18
Partial removal of tube	...	5
Subtotal	124(77.0%)	137(85.0%)
Other operations		
Evacuated early abdominal pregnancy	1	...
Evacuated interstitial pregnancy from old salpingectomy stump	1	...
Milked pregnancy from tube and used plastic procedure on tube	...	2
Used plastic procedure on tube	...	1
Subtotal	2(1.2%)	3(1.9%)
Bilateral salpingectomy		
Both tubes	13	6
Both tubes and 1 ovary	7	3
Both tubes and both ovaries	3	...
Subtotal	23(14.3%)	9(5.6%)
Hysterectomy		
Subtotal hysterectomy with		
Both tubes and both ovaries	2	...
Both tubes and 1 ovary	2	...
Vaginal hysterectomy	...	1
Total abdominal hysterectomy with		
1 tube	2	3
1 tube and 1 ovary	1	3
Both tubes	1	1
Both tubes and 1 ovary	2	4
Both tubes and both ovaries	2	...
Subtotal	12(7.5%)	12(7.5%)
Total instances	161	161

Associated Measures and Findings

Operations.—The most commonly associated surgical procedure was appendectomy. Of the patients who had their appendixes at the time of operation for ectopic pregnancy, 44.1% of the earlier group and 38.7% of the later group underwent appendectomy then. In light of the frequently heard statement that the appendix should not be removed electively when there is free blood in the peritoneal cavity, it is interesting to note that in 47.1% and 68.8% of the cases in which appendectomy was performed in our earlier and later groups a moderate or greater amount of blood was present in the abdomen and that morbidity in these patients was not increased. Abdominal myomectomy was performed in a few of the nulliparous women desirous of having children. None of these has become pregnant subsequently.

TABLE 9.—*Sites of Ectopic Pregnancy*

	1935-1944	1945-1954
Tube		
Ampulla	26	49
Middle third	14	14
Inner third (isthmic)	6	12
Interstitial and cornual	3	8
Unstated	110	77
Ovary	1	1
Abdomen	1	...
Total	161	161

Site.—The pregnancy was on the right side in 73 cases (45.6%) of the earlier group and in 99 cases of the later group (61.5%). No correlation appeared between previous appendectomy or other previous abdominal operations and the side involved.

The site of implantation of the ectopic pregnancy in cases in which it could be determined at operation is shown in table 9. The commonest site in both earlier and later groups was the ampulla. Of the patients for whom the site was not stated, 25.4% of the earlier group and 42.7% of the later group had tubes that were described as being enlarged through their entire or nearly entire length, or tubes so far destroyed that it was impossible to determine the original site of implantation of the pregnancy. In the earlier group, 79 patients (49.1%) suffered rupture of tissue in their ectopic pregnancy, and in the later group 95 patients (59.0%) were thus affected.

One true ovarian pregnancy was found in each series, and one primary abdominal pregnancy in the early group. There were three secondary abdominal pregnancies (primary tubal pregnancies), two in the earlier group and one in the later. The latter patient was delivered of a child weighing 1,940 Gm. (4.25 lb.) that survived, the only fetal survival in the series. (This case has been previously reported.[8])

In the entire series, among patients given conservative surgical treatment, the associated pathological findings could be implicated only six times as a possible causative factor for the ectopic pregnancy. All of these six patients had some form of endometriosis of the tube.

Results

Mortality.—The one maternal death, which occurred in the early group, made the over-all maternal mortality 0.3%. The patient died on the sixth postoperative day of pneumonia which had developed as a complication of anesthesia. No maternal death occurred in the last 12 years under study.

Obstetric Outlook.—When a woman has once had an ectopic pregnancy treated by the most appropriate surgical method, what can be said for her obstetric future? The outcome in this series is shown in table 10.

Follow-up data were obtained on 101 patients in the earlier group. Of these, 37 had a total of 70 subsequent pregnancies. Among the 37 patients, 4 had one subsequent pregnancy each which ended in abortion; and 1 other patient had a single subsequent pregnancy which terminated as an hydatidiform mole. Of the 70 subsequent pregnancies, 13 were ectopic. Among the cases followed, 36.6% of the patients subsequently became pregnant. Of the subsequent pregnancies, only 74.2% were carried to term.

TABLE 10.—*Subsequent Pregnancies After Ectopic Pregnancies*

	1935-1944	1945-1954
Patients traced	101	97
Subsequent pregnancies		
1	18	27
2	12	14
3	3	4
4	2	...
5	1	2
6	1	...
Total patients having subsequent pregnancies	37	47
Total subsequent pregnancies	70	77
(included ectopic pregnancies)	(13)	(6)

Among the later group a follow-up was obtained on 97 patients. Of these, 47 had a total of 77 subsequent pregnancies. Among the 47 patients were 5 who had only abortions after their ectopic pregnancies. There were six subsequent ectopic pregnancies in the group. If one considers only the group for which follow-up information was obtained, then 48.5% had at least one subsequent pregnancy. Of the total subsequent pregnancies in this group, 85.7% were carried to term.

The chances of a second ectopic pregnancy are of interest also. It has been stated that 3 to 4% of the patients who have had an ectopic pregnancy will have a second one.[9] During the 20-year period that we studied, 16 women had two ectopic pregnancies treated at the clinic. In addition, two other patients had their second ectopic pregnancies during the period of study, the first having been treated at the clinic previously. One other patient had her second ectopic pregnancy treated at the clinic after the termination of the study. This then makes 19 of the 306 patients who had two ectopic pregnancies treated at the clinic. Also, 15 patients in the group gave a history of an ectopic pregnancy treated previously elsewhere, thus making a total of 34 patients among 306, or an incidence of 11.1%. The period between ectopic pregnancies ranged from 8 months to 11 years, with an average of 3 years 5 months. Of the 19 patients treated at the clinic for both ectopic pregnancies, only five had full-term pregnancies between the two.

Summary

During the 20-year period 1935 through 1954, 322 ectopic pregnancies in 306 women were encountered at the Mayo Clinic. In comparing the experience in the first 10-year group with that in the second, we found the following factors essentially the same in the two groups: age, parity, initial complaints, incidence of abortion, the correctness of diagnosis in the pathologically proved cases of ectopic pregnancy, and the pathological diagnoses when findings were other than the clinically suspected ectopic pregnancy.

A tendency toward increasingly conservative surgery and more liberal use of blood transfusion was noted in the later group. Also noted in the later group was an increased number of women having subsequent pregnancies. The maternal mortality was 0.3%; no maternal deaths occurred in the last 12 years under study. The study suggests that the morbidity of appendectomy with surgical operations for ectopic pregnancy is no greater than with abdominal hysterectomy. If dilatation and curettage had been performed on all patients suspected of having ectopic pregnancy in our series, 18 intrauterine pregnancies that later reached term would have been interrupted.

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SURGICAL MANAGEMENT OF THE TUBAL FACTOR IN INFERTILITY

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Sixty-nine patients with infertility due to tubal occlusion were treated by salpingolysis, salpingostomy at the fimbria, resection of the occluded part with reanastomosis, and reimplantation of the tube (when blocked near the cornu uteri) into the uterus. In all procedures, other than salpingolysis, the use of polyethylene tubing as a splint, to be left in place as long as three months, was an important part of the technique. Eighteen pregnancies (26%) have occurred after operation in the 69 women of this series. The use of polyethylene tubing has resulted in a greater frequency of tubal patency. However, in spite of patency, pregnancy does not occur often if the tubal wall has been badly damaged. Pregnancy will occur most often when damage is limited to peritubal adhesions. Diagnosis of peritubal adhesions may fail unless culdoscopy is utilized in women whose infertility is unexplained after the completion of the usual studies. Culdoscopy was necessary for diagnosis in 17 of the 35 women in this series with peritubal adhesions due to pelvic inflammatory disease or endometriosis. Forty per cent of the 35 women treated by salpingolysis have become pregnant.

Disturbances of tubal function have been reported in from 10 to over 50% of infertile women. Rubin,[1] in a collected series of 86,000 cases, found an incidence of 40%. Nonsurgical treatment has included repeated uterotubal insufflation, hysterosalpingography, and a combination of pelvic diathermy and cortisone therapy. Greenhill's survey of 1937[2] discouraged surgical treatment, as it showed that 818 plastic operations resulted in 54 pregnancies, or a 6.6% pregnancy rate. In 1950, using monkeys, Castallo[3] reported on tubal healing after resection when various substances were used as splints. Regeneration of the mucosa and muscularis occurred only when polyethylene was used, while other substances led to the formation of scar tissue. The advent of a suitable splint, in addition to general advances in surgery, resulted in a renewed interest. In 1951, Perl,[4] Wexler and coworkers,[5] and Hellman[6] described procedures utilizing polyethylene splints. Since then may others[7] have reported their techniques and results.

In the operations to be reported here, many of the technical variations already reported have been used. Sharp dissection, careful hemostasis, and gentle handling of tissues are essential. Proper instruments, such as curved iris scissors, Bishop-Harmon eye forceps, probes less than 1 mm. in diameter with one end threaded for transport of the polyethylene tubing, and mosquito forceps must be available. Bleeding is minimized by use of a tourniquet around the cervix and rubber shod clamps on the infundibulopelvic ligaments.

Sixty-nine patients with occluded tubes were operated on at Stanford University Hospitals during the five years ending June, 1957. Although many had contributory causes, only those patients were included in whom interference with tubal function was thought to be the primary cause of infertility. There were 38 private and 31 clinic patients. Their ages ranged from 20 to 38 years, with an average age of 30. Only one had been infertile for less than 2 years, the others from 2 to 15 years. The mean duration of infertility was seven years.

Previous infertility studies, age, and the duration of infertility contributed to the determination of the time interval and sequence of the various tubal patency tests. In general, tubal insufflation was used for screening. If negative, the test was repeated the following month. Salpinograms were obtained if tubal insufflation was persistently negative or if no apparent cause of infertility was found. Culdoscopy was done if there was doubt about blockage shown by salpingograms, if there was suspicion of endometriosis or pelvic inflammatory disease, or if infertility was still unexplained. Tubal patency was assessed during culdoscopy by injecting methylene blue solution into the uterus and observing it emerge from the fimbria. This was primarily useful in confirming the presence of interstitial or isthmic blockage when no other indication for laparotomy was found during culdoscopy. Location of the blockage site during laparotomy was aided by injection of dye in the same manner.

Treatment of Various Lesions

In general, four standard operative procedures were used to correct the various pathological lesions encountered. Briefly, these were salpingolysis, salpingostomy at the fimbria, resection of blockade and anastomosis, and intrauterine tubal implantation.

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Peritubal Adhesions.—Thirty-five women had peritubal adhesions resulting from either endometriosis or inflammation extensive enough to envelope the fimbria and thus prevent the ovum from entering the tube.

Endometriosis: Endometriosis was found in 13 private patients. Two were Orientals, the others white. The diagnosis was suggested by complaints of dysmenorrhea, pelvic pain, and dyspareunia. Persistent retroversion, tenderness, adnexal masses, and nodules along the uterosacral ligaments were sought during bimanual examination. However, in 9 of the 13 the diagnosis was uncertain or unexpected to the extent that culdoscopy was performed. This failed in two cases due to dense adhesions which were found at laparotomy. In addition to salpingolysis, the procedures shown in table 1 were done as indicated. All endometriotic implants were excised by sharp dissection. Wedge resection was performed if the ovaries appeared cystic. Unilateral oophorectomy was done once because the tube on the same side was absent as a result of an operation for an ectopic pregnancy. Salpingo-oophorectomy was done in another instance because the tube was rudimentary. The uterus was suspended if there had been a persistent retroversion or if it appeared that the adnexa would then be held away from the site of previous adhesions. Pregnancy followed in 7 of the 13 women in this group. There were no ectopic pregnancies, two aborted, and the remaining five women delivered living infants.

TABLE 1.—*Additional Operative Procedures Done at Time of Tuboplasty*

	Varieties of Basic Lesions			
	Peritubal Adhesions			
Procedure	Endometriosis	Pelvic Inflammatory Disease	Hydrosalpinx	Interstitial Isthmic Block
Culdoscopy	7	12	...	3
Curettage	7	4	...	2
Excision endometriosis	13	...	...	...
Presacral neurectomy	2	...	...	...
Wedge resection, ovaries	6	7	...	2
Uterine suspension	7	4	2	...
Oophorectomy	1	...	1	...
Salpingo-oophorectomy	1	...	...	2
Salpingoplasty and splinting	1	...	...	...
Myomectomy	...	6	2	4

Pelvic Inflammatory Disease: Peritubal adhesions were due to chronic pelvic inflammatory disease in 22 women. Fourteen gave no history of postabortal, puerperal, appendiceal, or gonococcic infection. Four of 14 had positive salpingograms. In addition to salpingolysis, the procedures shown in table 1 were performed when indicated, as previously mentioned.

After all adhesions were freed, tubal patency was tested by injecting methylene blue solution into the uterus and observing its course through the tubes. Bilateral tubal patency was present in 7 patients and unilateral patency in 15 patients. Seven of the 22 became pregnant. Three of the seven with bilateral patency became pregnant. One had two ectopic pregnancies and the other two had term pregnancies. Four of the 15 with unilateral patency became pregnant, and all delivered living infants.

The obstructed tube was treated as shown in table 2. It does not appear that this additional effort produced any more pregnancies. Rather, if one tube is patent, it may be better to remove the obstructed tube and adjacent ovary so that ovulation will always occur on the side of the patent tube.

Fimbrial Closure.—Fourteen women had bilateral hydrosalpinges (10 private and 4 clinic patients). Salpingograms accurately demonstrated the sites of blockage, thus interstitial patency was evident in all. The tubes were repaired by excising the closed ends. The mucosa was everted to form a cuff which was sutured in place with 0000 absorbable chromic surgical (catgut) sutures. A splint of polyethylene tubing, 1.52 mm. in diameter, was threaded through the new ostium and brought out through the wall of the ampulla. The ends of the tubing were brought through the abdominal wall by threading them through 14-gauge needles. The splints were left in place from six days to three months. Currently, they are allowed to remain four weeks.

In 2 of the 14 cases the polyethylene tubing was brought out through the cervix. To accomplish this an anterior fundal incision was made in the uterus and a probe was passed through the fallopian tube by way of the uterine ostium. The polyethylene tubing was attached to the probe and pulled through the salpinx. Polyethylene tubing with an outside diameter of 0.965 mm. was used because normally the interstitial and isthmic portions of the tube are seldom greater than 1 mm. in diameter. Additional procedures were done as shown in table 1. Although nine patients achieved patency of one or both tubes, no pregnancy occurred.

TABLE 2.—*Additional Treatment of Unilateral Blockade After Salpingolysis and Subsequent Pregnancies**

Procedure	No Pregnancy	Pregnancy
Salpingo-oophorectomy	1	2
Cornual implantation	3	1
Salpingostomy	3	...
Dilatation of blockage site and splinting	1	...
No further surgery	3	1
Total	11	4

* Unilateral blockade shown by dye injection.

Midportion Blockage.—Four patients had blockage of the midportion of the tubes, three resulting from tubal ligation for sterilization. In these an anterior fundal incision was made and probes were passed through the uterine and abdominal ostia of the tube to the obstruction site. After the blockade was excised, the probe through the uterine ostium was passed through the rest of the tube and out the fimbrial opening. Polyethylene tubing, 0.965 mm. in diameter, was threaded on the proximal end of the probe and pulled after it. The other end of the splint was passed out through the cervix. If any difficulty occurred at this point, the splint was attached to a ureteral catheter which was passed with ease. Later, the splints were fastened to the cervix by stainless steel wire and left in place for about four weeks. The serosal surface of the two segments of fallopian tube were approximated with several 0000 absorbable chromic surgical (catgut) sutures. Patency resulted in three of the four women and all three became pregnant. One aborted, one had an ectopic pregnancy, and the other was delivered near term by cesarean section.

Isthmic and Interstitial Blockage.—In 16 patients blockage was in the isthmic and interstitial parts of the tube. In two of these it followed previous cornual resection for sterilization after cesarean section. In six the cornual blockage was excised and the patent portion of the tube was bisected for a short distance and implanted in the uterus. Small polyethylene splints were brought out through the cervix and left in place as long as three months. Patency resulted in four women. The only pregnancy went to term and the infant was delivered spontaneously.

In the remaining 10 an attempt was made to preserve tubal length, and the patent end of the tube was not implanted. Rather, it was attached to the uterine wall in continuity with a fistulous tract created by passing a probe through the uterine ostium of the tube and the uterine wall. A polyethylene splint was passed through the tube, the fistulous opening, and the cervix and was left in place up to three months. The serosa of the tube was attached to the uterus with 0000 absorbable chromic surgical sutures. Patency occurred in two instances, but there were no pregnancies.

Comment

The incidence of tubal obstruction will vary according to the frequency and kinds of tubal function tests utilized. Ostry[8] reported that, of 44 patients who had tubal obstruction by repeated tubal insufflation and hysterosalpingograms, 31 showed patency by insufflation with the patient under anesthesia. Jeffcoate[9] found that 43 of 116 insufflation tests and 13 of 86 salpingograms were erroneous. In 32 cases, blockage demonstrated by both insufflation and salpingograms proved misleading in five instances. Stallworthy[10] stated that the true incidence of tubal occlusion is about 10% and that higher figures quoted by others are due to functional occlusion. This may be why Buxton and Southam[11] reported that, of 67 patients with the diagnosis of tubal obstruction, pregnancy occurred in 5, or 7.5%. Extreme care must be taken not to operate on women whose tubes are actually patent.

The patients who were helped most frequently were those with peritubal adhesions. Of the 35 women treated by salpingolysis, 14, or 40%, subsequently became pregnant. The presence of peritubal adhesions was suggested by delayed shoulder pain after tubal insufflation and atypical distribution of the opaque medium in the peritoneal cavity. However, these signs were inconstant and culdoscopy was often necessary for diagnosis. Kelly and Rock[12] reported that tubo-ovarian adhesions were present in 34% of 417 infertile women in whom culdoscopy was successful. In 246 women with unexplained infertility subjected to culdoscopy, pathological lesions to account for infertility were discovered in 84, or 34%.

Peritubal adhesions were due to endometriosis in 13 of the 35 women in this group. The facts that all 13 were Oriental or white and private patients were consistent with the low incidence of endometriosis reported by large charity hospitals, particularly those with a high percentage of Negro patients.

Although endometriosis is found in only 4% of infertile women, it is a prominent factor in the group with infertility that is left unexplained after completion of the usual diagnostic studies. Recognition of the presence of endometriosis is particularly important because more than 50% of women with this disease will become pregnant after conservative surgical treatment. Even with the extensive involvement in the 13 patients with endometriosis in this series, 7 have become pregnant since surgery.

Hydrosalpinx produces the most extensive tubal damage. Fimbria become unrecognizable, and pressure flattens the mucosa and thins the muscularis. Even so, Siegler and Hellman[13] reported a 20.3% pregnancy rate in 891 collected cases. Rock and co-workers[7d] had a 24% pregnancy rate in such patients when they protected the newly formed ostium with a polyethylene hood that was removed at a second operation. In our series, the establishment of tubal patency in 9 of the 14 women was noteworthy, but no pregnancies resulted.

Animal studies[14] have indicated that normal implantation does not occur unless the endometrium corresponds closely in maturation to that of the implanting blastocyst. As others have suggested, it would seem that shortening of the tube, with early presentation of the blastocyst to the endometrium, might be the cause of the discrepancy between the patency and pregnancy rates. On the basis of Castallo's[3] experimental work that showed the tubal wall would bridge a gap, preservation of tubal length by utilization of a uterine fistula was attempted. The results in 10 cases (2 patent, none pregnant) do not compare favorably with the reported results of tubal implantation.

In 1956, Siegler and Hellman[13] reported the results of a survey of 2,285 tubal plastic procedures. Only operations done by surgeons who had performed at least 10 of these procedures were included. The over-all results of their study are shown in table 3 and are compared to the results of the Stanford series. The total pregnancy rate of 26%, 18 of 69 women, in the Stanford series is similar to the 22% rate in the Siegler and Hellman study. Both series show an increased frequency of ectopic pregnancy.

Siegler and Hellman stated that if pregnancy does not follow within a year of surgery, the operation should be considered a failure. Fourteen of the 18 pregnancies in the Stanford series did result within a year: 7 within 3 months, 2 within 6 months, and 5 within 12 months. However, two did not occur until after one year, and two others until after two years. Thus, even after a year, if the tubes are patent, the patient may be advised that pregnancy is still possible.

TABLE 3.—*Outcome of Tubal Operations in Stanford Series Compared with World-wide Survey Series*

Procedure	Operations, No.	Pregnancies Achieved: Ectopic	Abortion	Live Births	Total Pregnancies
Salpingolysis	35	1	2	11	14(40%)
Salpingostomy	14	0	0	0	0
Resection and anastomosis	4	1	1	1	3
Tubal implantation	16	0	0	1	1
Total	69	2	3	13	18(26%)
Siegler & Hellman Survey[13]	2,285	47	79	378	513(22%)

Five of the 69 patients had had tubal ligation for sterilization. Three were sterilized after cesarean section at 25 years of age or less. When this procedure is done in young women, there is a greater risk that it may be regretted in later years. This risk should be considered whenever tubal ligation is contemplated.

Summary

Sixty-nine women in whom the tubal factor was considered to be the primary cause of infertility were subjected to various types of tuboplasty, and 18 (26%) became pregnant. Of 35 treated by salpingolysis, 14 became pregnant. Fourteen were treated by salpingostomy at the fimbria and by polyethylene splints. Tubal patency resulted in nine, but none became pregnant. Twenty were treated by resection of the blocked area and polyethylene splints or tubal implantation and splints. Nine of these have patent tubes, and four became pregnant.

Proper tubal function requires a normal muscularis and mucosa as well as a patent lumen. Polyethylene tubing has resulted in a greater frequency of tubal patency. However, pregnancy does not occur often in spite of patency when the tubal wall has been badly damaged by disease. Pregnancy will result most frequently after surgery when damage is limited to peritubal adhesions. Culdoscopy may be necessary for the diagnosis of these adhesions.

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CHRONIC VESICULOPROSTATITIS—A REORIENTATION

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The term vesiculoprostatostasis is suggested for a complex of symptoms and findings occurring in many men and is believed to constitute a definite clinical entity. Probably more than 35% of all men over the age of 35 years have this condition. It consists of a variety of disturbances of urinary, sexual, and psychic functions; alterations in the size, shape, and consistency of the prostate and seminal vesicles; and the inconstant and quantitatively variable finding of pus in the secretions expressed from these structures. The finding of pus cells in the absence of recognizable pathogenic organisms justifies neither the diagnosis of infection nor the term prostatitis, which implies a bacterial cause. Anti-infective drugs in the uncomplicated case are useless. The primary cause of vesiculoprostatostasis is repeated sexual excitation without physiological discharge of secretions. Local treatment aims at decongestion of the seminal vesicles and prostate by periodic vesiculoprostatic massage. Relief of symptoms follows in a high percentage of patients. Cure is possible, however, only insofar as causes can be eliminated. Since the most common cause is marital sexual maladjustment, the cure may be relatively simple in some cases; in others the problem may be so deep-seated and complex as to lie in the sphere of the psychiatrist.

Chronic vesiculoprostatitis is regarded as a distinct clinical entity of exceedingly common occurrence. It is classically defined as a pyogenic infection of the prostate and seminal vesicles. Recently, certain of the traditionally accepted concepts relative to the nature, etiology, and pathogenesis have been questioned. It is the purpose of this paper to suggest that the condition is more logically to be considered a functional derangement of the prostate and seminal vesicles resulting from the stasis of retained secretions. It is also suggested that pyogenic infection, when actually present in either the acute or chronic form, is a complication of a preexisting state of congestion in these structures.

Although the infection has been thought to be primary in the prostate, it has also been thought that the seminal vesicles are almost always involved because of their proximity and common lymphatic drainage. The term vesiculoprostatitis has been therefore considered more accurately descriptive of the process as a single entity. The incidence of chronic vesiculoprostatitis is high, and it is estimated that more than 35% of all men over the age of 35 years can be shown to have the disease.[1] The diagnosis is usually made on the basis of a rather characteristic symptom complex, alterations in the size, shape, and consistency of the prostate and seminal vesicles, and the pus content of the secretions expressed from these structures.

Although it is generally believed that the disease is due to infection, it has long been known that only occasionally is the clinical diagnosis supported by laboratory evidence. In most instances, cultures of the prostatic and vesicular secretions show no growth; in others, the bacterial flora identified may consist of two or more organisms of doubtful pathogenicity. In a recent study, O'Shaughnessy, Parrino, and White[2] were able to obtain positive cultures from prostatic fluid obtained endoscopically from only 3 of 68 men thought to have the disease. In only one of these was a known pathogen identified. Based on a study of the prostatic secretions from 760 men, the same authors concluded that the finding of pus cells in the prostatic fluid is not sufficient to substantiate the diagnosis of prostatitis or to explain the symptoms of which patients thought to have such disease complain.

Similarly, efforts to correlate the alleged high clinical incidence of chronic vesiculoprostatitis with histopathological changes in the prostate and seminal vesicles have not been successful. Calams,[3] studying the vesicles from 161 routine autopsies for evidence of inflammation, concluded that histopathological evidence of such disease is only rarely observed. When seen, it was usually associated with prostatic carcinoma and prostatic and periprostatic abscesses. Our studies of seminal vesicles removed at autopsy and at operation have similarly disclosed singularly few instances of inflammatory change.

Also, it has been pointed out, particularly by Robbins,[4] that the histopathological criteria for inflammatory changes due to infection which have been employed by many pathologists are inaccurate. When more stringent criteria are used, the incidence of "chronic prostatitis" is found to be much less than is frequently supposed. He points out that in the normal senile changes in the prostate aggregations of lymphocytes are prone to appear in the fibromuscular stroma. All too often, he says,

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such nonspecific aggregates are diagnosed as "chronic prostatitis" even though the pathognomonic inflammatory cells (i. e., the macrophages and the neutrophils) are not present. The term "chronic prostatitis" should be restricted, he believes, to those cases in which there is clear-cut evidence of persistent smoldering infection in the form of neutrophilic infiltration, along with other mononuclear cells, as well as evidence of destruction and fibroblastic proliferation.

Even where such evidence is present, the immediate relationship to infection has not been clearly demonstrated. Most often, Gram-stained tissue sections fail to show the presence of bacteria. While it is common to think only of bacteria or other living agents as the cause of inflammation, it is important to remember that many nonliving agents, such as heat, cold, radiant energy, electrical or chemical stimuli, or simple mechanical trauma such as pressure, may also act as destructive influences and evoke inflammatory responses. Further, when such agents are sufficiently violent to cause the death of tissue cells, the necrotic substances released from the dead cells also serve as injurious agents and add to the inflammatory response.

When they were first employed, much was expected of the antibiotics and the sulfonamides in the treatment of patients with chronic vesiculoprostatitis. Their failure to alter the course of the disease materially or to modify the symptoms and findings was soon apparent. Had the process been truly a pyogenic infection, at least a reasonable degree of success might have been realized from this form of treatment, but this did not prove to be the case. Conversely, when the disease is treated by local massage to promote drainage of the retained secretions from the involved vesicles and prostate, relief of symptoms follows in a high percentage of patients.

From the foregoing, it appears reasonable to believe that what is basically involved is a functional inability of the prostate and seminal vesicles to empty themselves of their secretions. The back-pressure produced by the accumulating retained secretions gives rise to congestive inflammatory changes and is responsible for both the symptoms and the physical findings considered characteristic of the disease. After these congestive changes are established, the vesicles and the prostate are vulnerable to invasion by pyogenic organisms with the production of true suppurative disease. I am of the opinion that acute and chronic pyogenic disease of the prostate most often occurs as a complication of preexisting congestive changes.

This condition of stasis-congestion as a clinical entity has been previously recognize by Barnes.[5] He referred to the disease as "toxic hyperplasia of the prostate" and defined the condition a morbid state in which there is distention of the and with an excessive amount of prostatic fluid w[illegible] has specific toxic properties. He believed, too, that the seminal vesicles are similarly involved to a greater or lesser degree. Barnes indicates that, while other authors [6] had suggested the existence of a chronic noninfective congestion of the prostate which predisposed to infection in that organ, none had previously attributed the general systemic and localized symptoms to the toxic effects produced by the absorption of this excessive secretion.

If stasis and congestion are to be regarded as basic mechanisms in this condition, the term vesiculoprostatitis seems unsuitable since through use it has come to mean inflammatory disease of pathogenic bacterial etiology. In its place, the term vesiculoprostatostasis is suggested for clinical use, since it more nearly describes the true state of affairs.

Etiology

In speaking of the functional disturbances of micturition in women, Smith has referred to the bladder as the mirror of woman's soul.[7] Similarly, the state of a man's prostate and vesicles may well reflect his sexual activity. Thus it may be said quite seriously that vesiculoprostatostasis represents the difference between a man's sexual life and what he consciously or subconsciously would like it to be. The enormous influence of the psyche on man's outlook, his attitudes, and his physical well-being is well known. One has only to remember the storms and stresses of adolescence to appreciate that sexual frustration can be productive of distressing symptoms. The "stone-ache" of high school and college days that commonly followed upon sexual excitation without gratification and the manner in which it was relieved remains vivid in the memory of many men. In later life, this symptom of pain in the testis has sometimes been referred to as "testicular neuralgia" and may be of such character and duration as to suggest epididymitis as the cause. In both instances, the symptom is a reflex manifestation of overdistention of the seminal vesicle. In the adult, the pain or discomfort may be referred for a variable distance along the cord structures, although it may not extend to the testis itself. Very often, stripping the seminal vesicle of its retained secretions provides prompt relief of symptoms. It appears that the seminal vesicle, reacting to the stimulus of anticipated sexual activity, and ready to perform its function according to Nature's plan, but having no brains and no morals, accepts disappointment with poor grace. The immediate cause and effect relationship demonstrable here appears to deny the contention of the psychiatrist that "guilt feelings" alone are responsible for such symptoms. Alleged to be prominent among these is the feeling of guilt over masturbation. Although the psychiatrist is willing to admit that the urologist is very frequently successful in the treatment of such patients, he contends that the relief obtained is in effect produced by the patient's subconscious belief that he is expiating his earlier "sex offense" through the actual physical suffering which he must endure during the course of his treatment. To the conscientious urologist who includes the majority of such patients among his therapeutic successes, such a devious explanation is quite unacceptable.

The term "faulty sexual hygiene" is commonly employed to cover a number of irregularities in the sex life of the individual. It seems to imply that the continued or repeated unphysiological sexual practices producing chronic congestive changes in the prostate and vesicles can be modified or eliminated solely as a matter of discipline by the individual involved. This is probably true of "coitus interruptus" in which the penis is withdrawn from the vagina immediately prior to ejaculation in order to prevent impregnation. In such event, the evacuation of the prostate and vesicles remains incomplete, and it is generally acknowledged that when the practice is continued, congestive changes are a common consequence. Excessive sexual excitement without physiological gratification, as in "necking" or "petting," excessive masturbation, and a morbid interest in pornography are also considered responsible for such congestive changes.

Clinical experience seems to indicate that the principal cause of vesiculoprostatostasis is none of the foregoing; it is marital sexual maladjustment. This may be confirmed through tactful questioning by the sympathetic physician. In such event, the circumstances that lead to the development of congestive changes are not necessarily of the patient's own making, nor can he modify or eliminate them by himself. Sexual discord in the married couple has many causes, but the moral code of a monogamous society interdicts extramarital relationships; the great majority of men will not violate it but will instead make the best of what they regard as bad bargains. If it is true that many women, if not actually the majority as stated by Kroger and Freed,[8] are either frigid or indifferent to the need for sexual expression, the problems imposed by the thwarted sex drives of the men married to these women seem destined sooner or later to become manifested clinically in the syndrome of vesiculoprostatostasis.

Symptomatology

Ostensibly, the primary presenting complaint of the patient with vesiculoprostatostasis is pain. As the physician takes the history, he is soon aware that the patient is equally or more concerned with his failing sexual powers, although he may not associate the two complaints. Backache is most common; this is manifested as a dull, continuous sensation of pressure in the sacroiliac area which is not modified by position, motion, orthopedic devices, or muscle relaxants. A "tired feeling" in the lower part of the back, for which the patient seeks relief by a characteristic hyperextension of the spine, is a frequent complaint. Pain in the groins or suprapubic area, possibly radiating to the testis, is a common symptom implicating many an innocent varicocele and dilated inguinal ring. This pain is dull, continuous, and is sometimes described as mildly nauseating. On questioning, the patient frequently remembers that the pain closely resembles that of the "stone-ache" of his adolescence. A sense of perineal fulness, or of a "fluttering" in the rectum is sometimes described. The stripping of the vesicles and the prostate so frequently improves these symptoms that when such relief is not soon obtained the validity of the diagnosis is open to question.

Sexual complaints range from premature ejaculation to complete impotence. Loss of libido in varying degree is common. In this connection, it is surprising how many men in the late 40's accept their diminishing sexual powers as a natural consequence of aging. Occasionally, the patient complains of a mucoid urethral discharge, particularly noticeable in the morning, and especially after a bowel movement. Such a discharge does not originate in the urethra, but is thought to represent an overflow from the distended vesicles and prostate of the same order as the paradoxical incontinence associated with a chronically distended urinary bladder. Referred to as "gleet" or prostatorrhea, the discharge is disturbing to the patient and the physician alike because it may be mistakenly considered to be of venereal origin.

Urinary symptoms are not prominent, although the patient may complain of mild degrees of frequency, urgency, burning, and a diminution in the force of his urinary stream. Peculiar itching sensations in the urethra are sometimes experienced. Most often, the patient is unaware of any alteration in his voiding habits, even when subsequent urethroscopy discloses a significant degree of bladder neck contracture or granular changes in the posterior urethral mucosa.

General complaints include those of weakness in the thighs and legs, easy fatigability, lethargy, blunting of interest and mental facility, excessive anxieties, tensions, and tension headaches, and nervousness. Such symptoms have been attributed by Barnes[5] to the toxic effect of the reabsorbed prostatic and vesicular secretions. He was able to show that normal human prostatic fluid as obtained by prostatic massage has a definite, constant, and marked pharmacological action which is not identical with any other substance now known. Another explanation is that such systemic symptoms represent the combined effect of the functional disorder and the feelings of frustration and rejection engendered by the sexual problem.

Diagnosis

The diagnosis of vesiculoprostatostasis is based on the typical history, the symptoms, the findings, and the therapeutic response to decongestion by prostatovesicular massage. The expressed secretions may contain no abnormal elements, but, even if pus cells are found, the diagnosis remains valid. Many urologists examine the expressed secretions after each treatment for the purpose of grading the pus content; such quantitative estimations have no appreciable value either in diagnosis or as a measure of therapeutic response.[2]

The rectal findings are helpful in establishing the diagnosis but are not always characteristic. The prostate may be moderately enlarged and have what is described as a "boggy" or a "mushy" consistency, differing in this respect from the normal prostate which feels firm, or the hypertrophied prostate which is uniformly elastic. More often, the seminal vesicles are enlarged, cystic, and may be moderately tender. Not uncommonly, they are so enlarged that they obscure the outlines of the underlying prostate. The expression of copious quantities of secretion from the prostate and vesicles is almost pathognomonic of the condition.

Treatment

The treatment of vesiculoprostatostasis is largely symptomatic. The treatment of causes and the problems of prevention are enormous in magnitude and are largely outside of the province of the urologist. Although the physician may make suggestions that aim at eliminating causes, when these involve the failure of the husband and wife to effect a mutually satisfying sexual relationship, the prospects for permanent cure are reduced. In such event, the help of a psychiatrist may be required to resolve the basic causes of the conflict. With his special techniques, he may be able to rid the wife of her phobias and fears concerning sexual expression, and may provide her with the insight she needs to bring her to the acceptance of her responsibilities as a sexual partner. Other factors may also work against a happy solution. These include deep-seated psychiatric disturbances on the part of either husband or wife, organic diseases, aberrant religious convictions, and the like.

In the treatment of the male patient, sympathy and understanding on the part of the urologist, a carefully taken history, and a logical easily understandable explanation of the nature of the process responsible for the symptoms are indispensable to success. The very nature of the questions asked by the physician, to the majority of which the patient finds himself giving affirmative answers, serves to inspire confidence. The reassurance that he is suffering from no serious organic disease is important to the patient, for with understanding he can at least learn to live with his problem.

Patients with vesiculoprostatostasis are frequently dismissed from serious consideration as neurotics, but the sympathetic physician appreciates that neurosis frequently results from overtaming of the instinctual impulses and that frustration is frequently responsible for organic malfunction. In this sense, at least, the urologist has a dual role, and psychotherapy is an important component of the treatment. The physician who tells the patient with vesiculoprostatostasis that there is nothing wrong with him denies to him both the relief of symptoms and the peace of mind that comes with understanding.

Local treatment aims at the decongestion of the seminal vesicles and the prostate by periodic vesiculoprostatic massage. The details of such treatment are available in any standard urology textbook and will not be repeated here. Initially, it may be necessary to strip the prostate and vesicles of their retained secretions at four to seven day intervals for two weeks or longer. Thereafter, the treatment is repeated at weekly intervals until the patient is free of symptoms. The periods between treatments are then increased, and the patient is seen at intervals of one to three months depending on the continued freedom from symptoms, the consistency of the prostate and vesicles, and the quantity of fluid expressed. After several treatments at such intervals, the patient is dismissed and told to return if symptoms recur. In such event, one or more massages may again make the patient asymptomatic. The patient is frankly told that the prospects for permanent cure are small, but, if the true nature of the process has been explained to him, there is usually no difficulty in securing his complete cooperation for any regimen of treatment.

Endoscopic investigation and urethral instrumentation are employed only if there are concomitant urinary complaints that clearly indicate the need for such efforts. Estrogen therapy has been employed to reduce prostatovesicular congestion, but it seems advisable to restrict this therapy to the management of the patient acutely uncomfortable as a result of sexual gluttony.

Comment

The conventional approach to some of the common disorders of prostate gland and seminal vesicles as manifestations of infection results in many inconsistencies that cannot be explained satisfactorily. It has not been possible to reconcile the exceedingly common incidence of an entity thought to be due primarily to bacterial invasion with the relative rarity of demonstrable histopathological evidence of such involvement. Furthermore, bacterial cultures of the secretions of the glands thought to be involved by infection have proved disappointing, as has the use of the antibiotics and the sulfonamides in treatment.

If it is recalled that inflammatory changes may be due to other than living agents such as bacteria, it is then possible to explain the symptom complex previously referred to as chronic vesiculoprostatitis as a functional derangement of the prostate and seminal vesicles. This results from a failure of the glands to empty themselves of their secretions, and the resultant stasis of the secretions and the back pressure they produce are responsible for the symptoms and findings. The term vesiculoprostatostasis therefore seems more appropriate for purposes of clinical discription than does the term vesiculoprostatitis, since the latter has come to denote a bacterial causation.

The primary cause of vesiculoprostatostasis is repeated sexual excitation without physiological gratification. This is most common as a result of marital sexual maladjustment. Factors such as "coitus interruptus," sexual excesses, alcoholism, unrewarded "necking" and "petting," and a morbid interest in pornography contribute also in varying degree to the development of the congestive state.

The principal aim of treatment of the urologist is the relief of symptoms caused by the congestion. Cure is possible only insofar as the elimination of the causes can be effected. When the problems of marital sexual maladjustment leading to the development of congestive disorders of the prostate and vesicles in the husband are relatively simple, the superficial psychotherapy given in association with urologic treatment may be most helpful. When the causes are more complex and deep-seated the problem lies in the psychiatrist's sphere of interest.

The congestive changes in vesiculoprostatostasis are thought to predispose the prostate and seminal vesicles to invasion by pathogenic bacteria with the development of true suppurative inflammatory disease.

1813 The Medical Towers.

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POSTOPERATIVE INTRA-ABDOMINAL BLEEDING.—The common elements associated with massive postoperative bleeding . . . are (1) major surgery in a debiliated patient (with malignancy), (2) evidence of impaired wound healing, (3) intra-abdominal infection, (4) a biliary or pancreatic fistula, (5) severance and ligation of a major branch of the hepatic artery or other component of the celiac axis, and (6) hemorrhage, usually occurring late in the postoperative period. One can envision several technical failures as contributing to the catastrophe described: (1) fine suture material, which was tied too tightly; (2) injury of the vessel wall in an attempt to leave only a short stump of the arterial branch being ligated; (3) injury to the arterial wall during the placement of a suture ligature. In the reported cases, all of the ligatures were single or double ties of 000 silk. That there was not direct involvement of a single surgeon in more than one case seems to obviate the importance of a personal factor. . . . The most important elements were . . . a failure of healing as a result of malnutrition and the presence of infection or bile or pancreatic juice at the site of arterial ligation. . . . Secondary hemorrhage was commonest in infected wounds and . . . as in the cases reported in this paper, [it] generally occurred as two separate episodes, the first a small initial hemorrhage two or three days later. The treatment of choice was described as ligation of the vessel; however, recent advances in vascular surgery might modify this opinion. Hemorrhage from the carotid arteries associated with complications of radical neck dissection is well known to head and neck surgeons. In general, this misfortune does not occur unless the wound flaps have remained unhealed, a fistula has developed below the wound flap, or an abscess has developed immediately adjacent to the artery.—G. E. Moore, M.D., Ph.D., and M. J. Payne, M.D., Intra-Abdominal Hemorrhage following Abdominal Surgery, *A. M. A. Archives of Surgery,* August, 1958.

PHYSICIAN RELATIONSHIPS

PROBLEMS RELATED TO PUBLIC HEALTH, CLINICAL PRACTICE, AGING, AND LONG-TERM ILLNESS

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Physicians working as health officers in state and local governments should be full partners with other physicians, including those in private practice and in organizations that concern themselves with the care of the sick and prevention of disease. A closer relationship between public health practice and clinical practice is desirable. Public health, occupational medicine, and preventive medicine are closely allied. The need for cooperation between the public health physician and the private physician is especially evident in the field of old age and chronic illness. A civilized community is marked by the extent to which time and money are voluntarily committed to the proper care of the very young, the very old, and the infirm. Individuals can do a great deal, but organized effort is called for as well.

Let us think about the relationship of physicians in private practice to those who are not in private practice, the relationship of physicians in public health practice to physicians in clinical practice, and some relationships with other professional workers in the field of aging and long-term illness.

Public Health and Clinical Practice

There are such questions as: Is the American Medical Association more interested in physicians in private practice than it is in those who are not in private practice? What is the real status, in the American Medical Association, of physicians teaching in our medical schools, physicians in industry, physicians in the armed services, physicians in the field of insurance, physicians in research, physicians in government service of all kinds, and all other non-fee-for-service physicians? There are many physicians in all kinds of medical administration and health administration activities today. Are they full partners with other physicians? Are they adequately represented in the House of Delegates of the A. M. A.? What about physicians in the field of public health? Are they welcome at medical society meetings? Are they accepted and respected as physicians?

I was a member of the House of Delegates from 1950 to 1955. In 1950 several members of the House of Delegates were state and local health officers. In 1955 I was the only public health physician left in the House, and I was there by virtue of my position as Secretary and General Manager of the Kentucky State Medical Association. How many "working" health officers of the United States are members of the House of Delegates today?

I have been concerned for some time with the question of whether or not the American Medical Association truly serves the interests of all physicians or whether it places undue emphasis on the interest of physicians in private practice. It was with these thoughts in mind that I suggested to the Board of Trustees of the American Medical Association that the Association study the current relationship of doctors of medicine who are not in private practice to those who are in private practice. It was my thought that the scope and extent of the problems involved in working and organizational relationships be determined. I further suggested that such action as may be needed and desired be taken to strengthen the American Medical Association as an organization for all doctors of medicine. Such a study is currently being made.

Although the problems that relate to the various groups of physicians who are not in private practice should be studied, let us consider the subject for a little while from the standpoint of the public health physician and the Section on Preventive Medicine. Should there be a separate section on "public health"? Many public health physicians think there should be. However, in discussions with the Council on Scientific Assembly, the question arose as to how many public health physicians would attend its sessions. The primary consideration is whether or not one section can adequately serve the interests of physicians in public health practice and physicians in such branches of clinical medicine as occupational medicine, aviation medicine, and preventive medicine.

Perhaps the name of the Section will throw some light on the subject. In 1859 the American Medical Association authorized a "Section on Medical Jurisprudence and Hygiene." Over the years the name of this Section has been changed as follows: 1859, Section on Medical Jurisprudence and Hygiene; 1865, Section on Medical Jurisprudence, Physiology, and Hygiene; 1872, Section on State Medicine; 1873, Section on State Medicine and Public Hy-

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Chairman's address, read before the Section on Preventive Medicine at the 107th Annual Meeting of the American Medical Association, San Francisco, June 24, 1958.

giene; 1879, Section on Medical Jurisprudence, Chemistry, Psychology, State Medicine, and Public Hygiene; 1880, Section on State Medicine; 1900, Section on Hygiene and Sanitary Science; 1908, Section on Sanitary Medicine; 1909, Section on Preventive Medicine and Public Health; 1922, Section on Preventive and Industrial Medicine and Public Health; and 1955, Section on Preventive Medicine.

The development of the American Board of Preventive Medicine and the American College of Preventive Medicine must be considered and also the development of the American Association of Public Health Physicians. This latter organization represents the "working" health officers of the country as its primary interest.

A closer relationship between public health practice and clinical practice seems indicated. Perhaps physicians in clinical practice need a better understanding of and interest in the problems of public health practice. Most physicians in public health practice consider themselves to be physicians first—physicians specializing in public health practice. We consider the community as our patient. We diagnose and treat communities. We try to help restore communities to health and to maintain them in a healthy condition. The practice of public health is different from the practice of clinical medicine because our patients are different. They have different needs and require different skills and techniques to meet their needs.

For over seven years I served as state commissioner of health and secretary and general manager of the State Medical Association in Kentucky. It was my experience that physicians in the clinical practice of medicine usually did not fully understand what was involved in the modern practice of public health. On the other hand, I have never known a physician in the clinical practice of medicine who did not become an enthusiastic supporter of physicians in public health practice if he had an adequate opportunity to know and participate in the solution of community health problems.

It is my hope that the physicians in clinical practice will, to an ever-increasing degree, come to understand and, along with public health physicians, provide the leadership in the field of community health that the public so much desires and expects.

As a result of these beliefs and hopes, I requested that the Board of Trustees of the American Medical Association also give special study to the problem of providing leadership in the extension and strengthening of community health services throughout the nation. Inherent in such a study are the problems of developing a mutually acceptable definition of public health practice, providing leadership for all governmental health and medical activities, and a consideration of the many public health activities of various nongovernmental health agencies and groups. This study, too, is currently being made. I hope that it results, among other things, in the formation of a council on public health practice in the American Medical Association.

Aging and Long-Term Illness

The foregoing discussion concerns problems involved in the relationship of physicians in private practice to those who are not in private practice, especially the relationship of public health practice to clinical practice. Now let us consider some relationships involved in the field of aging and long-term illness. Nothing more clearly illustrates the need for and the opportunity for cooperation between the public health physician and the private physician.

Health-related problems arise in such areas as recreation, counseling, adequate housing, and the development of facilities for long-term care. Organized home care programs are being developed, as are such community services as "meals on wheels" and homemaker services, to enable our older citizens and the chronically ill to live at home as long as possible and to maintain a state of "self-help" as much as possible. The whole field of medical rehabilitation for the aged and chronically ill is also rapidly developing, and, as it does, we are increasingly aware that no single discipline can solve all the problems of aging. Medical social service is coming into its own in this field, as in others. Medicine is doing a marvelous job of physical rehabilitation. But all too often, after an excellent job of physical rehabilitation, we find the individual cannot find a job or has no adequate home to which to return.

An 83-year-old man had a cerebrovascular accident. After several weeks in the Institute of Physical Medicine and Rehabilitation, the man was restored to a sufficient degree of self-help to enable him to go home. That is, he was physically able to go home. However, he had no home. The medical social service department had been working on the problem, but at the last minute the couple with whom the man had been staying changed their minds and said, "No! we don't want him back. The medical social service department then had to try some other arrangement. They called the man's son in Chicago. The son said, "Let me think about it." A few days later the son, without even visiting his father or finding out what his physical condition was, said, "No, I can't keep him."

Are we as physicians doing all we can to help improve the care of individuals in nursing homes and homes for the aged? There are many complaints to the effect that "we can't get our physicians to help us—they just are not interested." On the other hand, there certainly is a growing awareness of and interest in this problem on the part of the physicians of the country. The Joint Council to Improve the Health Care of the Aged has recently been formed.

This council was formed by the American Medical Association, the American Dental Association, the American Hospital Association, and the American Nursing Home Association.

The problems of the chronically ill and aged in institutions are great. A survey[1] of the proprietary nursing homes of the country in 1954 revealed that there were 25,000 nursing homes in the United States with 450,000 beds. Of these homes 91% were proprietary, 6% were voluntary, and 3% were publicly owned. A survey[2] of 13 states revealed that of the patients in proprietary nursing homes (1) the average age was 80 years, (2) less than one-half could walk alone or with the aid of a crutch or cane, (3) over half were mentally disoriented at least part of the time, (4) one-third were incontinent; and (5) one-third of the homes had neither a registered professional nurse nor a licensed practical nurse on the staff.

Are we concerned about these problems? Are we doing all we can? Are we as physicians providing the leadership that is needed? As physicians we cannot solve all the problems by ourselves, but we can do a great deal in cooperation with others. The administrators of the homes and others interested in the improvement of the care of individuals in nursing homes and homes for the aged are eager for our assistance. In addition, we have obligations that go beyond the field of public health and clinical practice. I am thinking of such biblical quotations as "Inasmuch as you have done it unto the least of my brethren, you have done it unto me." "Do unto others as you would have others do unto you." "You shall love your neighbor as yourself." "Am I my brother's keeper?" "If you do not love your brother whom you have seen, how can you love God whom you have not seen?"

I am also reminded of a statement by Dr. A. L. Chapman, chief, division of special health services, Public Health Service, who said: "Why bother about nursing homes and homes for the aged? Oldsters, most of them existing on meager incomes, have little bargaining power." The question then is bound to arise, "Why spend so much time and money caring for them?" Dr. Chapman said, "The answer, if you believe in it, is a simple one: The hallmark of civilization is a voluntary commitment of time and money to make sure that oldsters, youngsters, and the infirm are not denied whatever benefits and privileges a humane society can endow them with."

I recommend that the Section on Preventive Medicine give special consideration to these problems. The Section should have one or more special committees to participate in the study that is being made by the American Medical Association. At the very least, the Section in some way should communicate its views to the Committee that is considering these problems. We, as individuals, can do a great deal, but some action by the Section as a whole is indicated.

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SALICYLATE INTOXICATION.—Until . . . 1955 . . . the treatment of salicylate poisoning was largely symptomatic. Gastric lavage should be performed in the hope of recovering some of the ingested salicylate. In the alkalotic stage fluids should be administered in the form of glucose in water. Small doses of sodium bicarbonate are recommended by some authors because bicarbonate increases the renal excretion of salicylates and also prevents too great a lowering of the bicarbonate reserve. The danger of large doses would be the aggravation of the alkalotic state, and some authors recommend that no bicarbonate be given until a state of acidosis exists. Once the patient has become acidotic, intravenous injection of sodium lactate is the preferred form of therapy. This was first introduced by Williams and Panting in 1937 and since that time has been standard treatment for salicylate poisoning. . . . Schreiner and co-workers reported a case of acetylsalicylic acid poisoning treated by dialysis with the artificial kidney. The initial salicylate level was 90 mg. per 100 cc. and was reduced by 57 mg. per 100 cc. by dialysis for six hours. If the artificial kidney is available, this certainly constitutes the procedure of choice for severe salicylate poisoning; it may be lifesaving in many such cases.—D. C. Schadt, M.D., Salicylate Intoxication in an Adult, *A. M. A. Archives of Internal Medicine*, August, 1958.

SOLITARY PLEURAL EFFUSION DUE TO MYXEDEMA

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A patient who had complained of a mild, nonproductive nocturnal cough developed slight swelling of both legs and was then found on fluoroscopy to have a right-sided pleural effusion. Part of the fluid was removed by thoracentesis; the rest disappeared gradually after a diagnosis of myxedema was made and treatment with thyroid substance (in dosages up to 0.06 Gm. per day) was begun. The patient's appearance improved remarkably, and his cough stopped. The diagnosis was confirmed at autopsy when the patient died, half a year later, after a cerebral hemorrhage. This experience illustrates the fact, already known, that serous effusions sometimes occur in myxedema even in the absence of cardiovascular, renal, or other causes of water retention; but the case was impressive because in this patient the unilateral pleural effusion was the sole presenting effusion in the course of the myxedema.

Serous effusions are known to occur in untreated and inadequately treated myxedema even in the absence of cardiovascular, renal, or other causes of fluid retention. Most often the effusion is in the pericardium,[1] but there are instances on record in which ascites[2] and ascites with pleural effusion[3] appeared in the course of myxedema. The occurrence of a unilateral pleural effusion as the sole presenting effusion in the course of myxedema has not been reported to our knowledge.

Report of a Case

A 73-year-old man was admitted to the medical service of Lebanon Hospital on July 5, 1957, because of a right-sided pleural effusion detected on fluoroscopy during the course of examination by his physician four weeks before. For three months there was a relatively mild, nonproductive nocturnal cough. Four weeks prior to admission slight swelling of both legs and ankles was noted, more pronounced on the left side. This did not progress.

At the age of 15 years the patient had had acute cellulitis of the left lower extremity for which multiple incisions and drainage were required. At 67 years he had had a bilateral inguinal hernioplasty. He emigrated to the United States from Greece in 1915. Aside from a disclosure of heavy cigarette smoking during adult life up to the age of 53 years and moderate alcohol intake, response to further inquiry was not contributory.

Physical examination revealed a small, well-developed, and well-nourished man, ambulatory, who did not appear acutely or chronically ill. There was definite physical and mental slowness. There was no dyspnea, orthopnea, or cyanosis. His blood pressure was 170/90 mm. Hg and pulse rate 76 per minute and regular. The hair of his eyebrows and scalp was sparse and dry. The neck veins were not engorged, and the thyroid gland could not be palpated. Classic signs of a large right-sided pleural effusion were elicited. The heart was not detectably enlarged, and there was a regular sinus rhythm with rate of 76 per minute. The heart sounds were of good quality, with a grade-2 apical systolic murmur and the aortic second sound greater than the pulmonic second sound. There was no abdominal tenderness, nor was there evidence of palpable viscera, masses, or abdominal fluid. There were numerous scars on the left thigh and leg, bilateral varicose veins of the legs, and ankle edema, 2+ on the left and 1+ on the right.

The patient was regarded as having myxedema in addition to a right-sided pleural effusion of undetermined etiology. Studies were designed to include measures which might disclose the origin of the pleural effusion, as well as to corroborate the impression of myxedema and to delineate the latter as being either primary or secondary to hypopituitarism.

Laboratory Findings.—Laboratory determinations disclosed a hemoglobin level of 11.6 Gm. per 100 cc. and red blood cells, 3,700,000 per cubic millimeter, with 58% polymorphonuclear leukocytes, 28% lymphocytes, 8% monocytes, and 5% eosinophils. The urine specific gravity was 1.021, with albumin, 1+, sugar, none, and 10-12 leukocytes per high-power field. The sedimentation rate was 84 mm. per hour (Westergren). Fasting blood sugar level was 96 mg. per 100 cc., and urea nitrogen level was 21 mg. per 100 cc. Serum total protein level was 8.4 Gm. per 100 cc., with albumin 4.8 Gm. and globulin 3.6 Gm. per 100 cc. The total serum cholesterol level was 381 mg. per 100 cc., with esters, 219. Serum alkaline phosphatase level was 3.3 Shinowara (S.J.R.) units, and 24-hour urinary excretion of 17-ketosteroids was 10.5 mg. Cold hemagglutinins could not be detected in the serum. Sputum findings were negative for acid-fast bacilli and cytologically negative for tumor cells. Stool examination did not reveal parasites or ova. The electrocardiogram revealed flat T waves but was otherwise normal.

X-ray of the chest revealed a moderate-sized basal pleural effusion on the right, a small calcification in the left hilar region, elongation and tortuosity of the descending aorta, and minimal left ventricular enlargement. X-ray of the skull disclosed a normal sella turcica. The patient was not sufficiently cooperative for a valid determination of the basal metabolic rate.

On July 10, 1957, a thoracentesis was performed on the right side, with removal of 500 cc. of clear yellow fluid. No attempt was made to remove the entire effusion. X-ray of the chest immediately after the procedure revealed considerable residue of fluid. The aspirated fluid was negative for acid-fast and other bacteria on smear and culture, and cell block was negative for tumor cells. The patient refused consent for bronchoscopy. Venous pressure was 80 mm. H_2O, arm to tongue circulation time (Decholin) 35 seconds, and arm to lung time (ether) 10 seconds.

From the Department of Medicine and the Bertha C. Reiss Radioisotope Laboratory, Lebanon Hospital.

On July 12, 1957, tracer studies were initiated after oral administration of 39 μc of radioactive iodine (I^{131}). Thyroid uptake at five hours was 3.7% of the administered dose; at 24 hours the value was 5.8%. On July 24, 1957, similar studies were done after the intramuscular administration of three consecutive daily doses of 10 U.S.P. units of thyrotropin. The five-hour uptake was now 4.9% and the 24-hour uptake 6.0%, not significantly different from the initial tracer data.

Diagnosis.—The clinical diagnosis of myxedema was confirmed by the pertinent laboratory studies detailed above. Failure of thyroid uptake of radioactive iodine to rise significantly after administration of thyrotropic hormone indicated that the hypothyroidism was primary, although there are exceptions to this generalization.

None of the conventional etiological factors of pleural effusion was discovered in this case. There was no clinical evidence of congestive heart failure. In this connection it should be noted that prolongation of circulation time (as in this case) is characteristic of myxedema and corresponds closely with the decrease in basal metabolic rate.[4] No evidence of intrathoracic neoplasm or active pulmonary tuberculosis was found. Renal disease or other systemic causes of fluid retention could not be implicated. We therefore suspected that the pleural effusion in this instance was a direct result of myxedema without the intermediation of congestive heart failure, as in many instances pericardial effusion occurs in myxedema.[1c]

Therapy and Course of Disease.—No therapeutic regimen for fluid retention was instituted. The patient remained on a regular diet and was kept ambulatory. On July 26, 1957, he was discharged to the care of his referring physician with instructions to take ½ grain (0.03 Gm.) of thyroid daily. This dosage was to be cautiously increased after a short interval of observation. After three weeks the daily dose of thyroid was increased to 1 grain (0.06 Gm.) daily. There was remarkable improvement in the patient's appearance, and his physical and mental status improved strikingly. His cough disappeared, as did the physical signs of pleural effusion. On Sept. 5, 1957, x-ray of the chest disclosed clear lung fields with no evidence of pleural fluid. The daily administration of thyroid was continued.

The patient enjoyed good health until Jan. 30, 1958, when he collapsed in the bathroom of his home. Examination by his physician disclosed stupor and left-sided hemiplegia. His blood pressure was 110/80 mm. Hg and pulse rate 88 per minute and regular. After readmission to the hospital, the patient's general status deteriorated progressively in spite of supportive measures. Coma ensued, signs of bronchopneumonia appeared, and death occurred on Feb. 4, 1958.

Postmortem Findings.—The pituitary gland weighed 0.7 Gm. and was not remarkable. The thyroid gland weighed 6.3 Gm. and was very small; it had a grayish, pale tan color. On section, an increased amount of connective tissue was noted; no colloid could be seen grossly. Microscopic examination revealed marked increase in fibrous and fat tissue, dense infiltrations by lymphocytes, and almost total replacement of functioning parenchyma. Surviving acini were markedly distorted by Hürthle cell changes. There was no evidence of patterns of the Riedel type. The right and left adrenal glands weighed 6.5 and 6 Gm. respectively. They were triangular in shape and normal in size and position. The capsules were thin and translucent and the cortices yellow in color with a normal amount of lipid. The medullas were almost totally autolyzed.

There was severe tracheobronchitis. Extensive bronchopneumonia involved both lower lobes with focal areas of acute fibrinous pleuritis. The left ventricle was slightly hypertrophied. The aorta was atheromatous and partially calcified in its abdominal portion.

Examination of the brain disclosed asymmetry of the cerebral hemispheres, marked injection of the vessels on the surface of the hemispheres, and marked atherosclerosis of the vessels at the base. There were marked subarachnoid hemorrhages over both cerebellar hemispheres, a large hemorrhagic area in the right lateral ganglionic region, distention of the right cerebral ventricle with fresh clotted blood, and slight compression of the contralateral ventricle, which was filled with blood. A hemorrhagic area 4 cm. in diameter involved the right internal capsule and basal ganglions with compression of surrounding tissue. There was no evidence of neoplasm. Sections of the midbrain, cerebellum, and spinal cord revealed no abnormalities.

Comment

Myxedema is seldom considered as one of the many etiological possibilities in the diagnostic problem of unilateral pleural effusion. In a study of a large number of cases of pleural effusion in which a major objective was a survey of the causative factors, hypothyroidism was not recorded.[5] On the other hand, pericardial effusion in myxedema is well documented, even in the absence of congestive heart failure. Kern and co-workers [1c] emphasized the hitherto unrecognized frequency of pericardial effusion in myxedema in their study of four consecutive cases of myxedema, in each of which the presence of a considerable pericardial effusion was proved by aspiration. None of these patients had congestive heart failure, and none was found roentgenologically to have pericardial effusion. Two had relatively little enlargement of the cardiac silhouette.

Other authors have reported myxedema with ascites [2] and with ascites and pleural effusion.[3] In all of these documented instances of myxedema with serous effusions, consistent treatment with thyroid extract resulted in complete clearing of the entire syndrome. In our patient administration of thyroid extract was likewise followed by restoration of a euthyroid state and complete disappearance of the pleural effusion.

The pathogenesis of serous effusions in myxedema has been regarded as uncertain. Lange [6] appears to have demonstrated increased capillary permeability in five cases of myxedema, in all of which thyroid treatment caused rapid return of capillary permeability to normal. His method involved use of the dye, fluorescein, and a photoelectric skin colorimeter. With the same method there was no abnormal increase in capillary permeability in cardiac edema and in the edema of hepatic cirrhosis.

Conclusions

It is our suspicion that, among the many cases of pleural effusion in which the cause remains unknown even after intensive study, there may be some in which myxedema is etiological and unrecognized. We suggest that myxedema receive consideration in the differential diagnosis of pleural effusion.

84 Grand Concourse (51) (Dr. Schneierson).

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EXTRA-ARTICULAR ARTHRODESIS OF THE SUBTALAR JOINT (GRICE PROCEDURE)

RESULTS IN SEVENTEEN PATIENTS WITH CEREBRAL PALSY

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and
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The surgical immobilization of the subtalar joint, helpful in certain cases of poliomyelitis, has likewise been found helpful in occasional patients with cerebral palsy. If certain supplementary procedures are done to insure proper muscle balance, the subsequent growth of the foot in young patients should not be affected. The operation has been carried out on 29 feet in 17 patients, of whom 11 had not been walking. After the operation, 10 of the patients became free of both crutches and braces, and all but one, whose athetosis was so severe that he could not sit alone, became ambulatory.

This report is on the use of the Grice[1] extra-articular arthrodesis of the subtalar (subastragalar) joint in patients with cerebral palsy.

Grice has described the indications for and the results from the use of this orthopedic surgical procedure in patients with poliomyelitis. His two papers[2] on the subject describe in detail the operation and give emphatic warnings of complications. Our experiences in carrying out the operation have been the same as those reported by him.

During the past four years in four papers[3] on the use of surgery at Duke Hospital in the rehabilitation of patients from the North Carolina Cerebral Palsy Hospital, warnings were given on the importance of recognizing that the results from surgery in patients with cerebral palsy have not been and will not be as satisfactory nor as predictable as they are in patients with poliomyelitis. Nevertheless, if properly done, surgery offers a possibility of ambulation or of making a patient brace-free, neither the difficulty of decision nor the improbability of complete rehabilitation should hinder efforts at practical restoration of these functions. At the North Carolina Cerebral Palsy Hospital the philosophy is, "If you can, get them to walk, preferably brace-free." In following this program we do not hesitate to do an indicated operation. Experience has taught us that when surgery is indicated it should be done early. The training should be given after the opera-

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tion. The program should not be training followed by operation. Surgery should no longer be looked on as a last resort. Braces should be the last resort and should be used only when surgery or other procedures cannot free a patient of encumbering, expensive, noisy, uncomfortable appliances. One of us (L.D.B.), in a previous paper based on 944 consecutive patients, reported only 164 (16.7%) who were considered suitable for operation. If these figures do not prove that this program has been nonradical they at least illustrate that surgery has been used rarely and only after the possible benefits of operation have been evaluated. The same conservative policy has been followed in the use of the Grice extra-articular arthrodesis of the subtalar joint in 29 feet in 17 patient.

In his original article Grice reported the operation as a procedure to be used in combination with necessary tendon transplants in patients who had had poliomyelitis with resulting paralysis of the anterior and posterior tibial muscles. In a second paper he reported the use of the operation in 52 such patients and mentioned 16 feet operated on in an attempt to correct severe pronation, some cases of which were associated with cerebral palsy. He did not include these 16 feet in his report nor did he break them down numerically into their respective categories. The present report, the first on the use of the procedure in patients with cerebral palsy, is made after conferences with the originator of the operation and with his permission.

Indication for Operation

The indications for stabilization of the subtalar joint in the patient with cerebral palsy are the same as in any other group of patients. As stated in previous publications, the rehabilitation of the patient with cerebral palsy, as in all patients with neuromuscular problems, depends on the restoration of muscle balance, the proper alignment of joints, the control of joint motion, and the establishment of correct posture with normal relationships in the line of gravity. The Grice procedure done in the properly selected patient in whom, insofar as possible, muscle imbalance has been corrected can contribute materially in this rehabilitation. Grice described the foot in which the operation is indicated as follows:

> Initially the deformity is similar in appearance to that of a mildly pronated foot. There is slight eversion of the heel, moderate prominence of the head of the astragalus (talus) medially, and abduction of the metatarsus. Unlike the pronated foot with good musculature, the paralytic valgus foot usually becomes progressively worse. It is difficult to prevent the development of this deformity by the use of supportive apparatus, such as arch supports, braces, or casts. There are several factors entering into the progressive character of this type of foot deformity. The deformity is initiated by muscle imbalance which displaces the tarsus in valgus and depresses the arch. The functional stress of walking increases the deformity. Inasmuch as these patients are in the actively growing period, the subsequent growth of the bones in the abnormal position increases and fixes the altered contour of the mid-tarsal structures. In a few years the foot may assume the appearance of a very flat foot.
>
> . . . the heel is displaced into eversion by the unopposed action of the peroneal muscles and the gastrocnemius. As the calcaneus is everted, its anterior portion is displaced laterally and posteriorly. As a consequence, there is loss of the normal support beneath the head of the astragalus which drops into equinus and projects further anteriorly. The backward displacement of the calcaneus and the forward movement of the astragalus results in abduction of the metatarsus.
>
> The surgical correction of this deformity is for the purpose of obtaining several major objectives. The calcaneus must be replaced beneath the astragalus and maintained in normal relation to it. The astragalus must be brought up out of equinus. Muscle balance should be restored by tendon transplantation to avoid recurrence. The deforming everting power of the peroneal muscles should be removed and active inversion and dorsiflexion should be restored to the astragaloscaphoid (talonavicular) area. Since it is desirable to correct this deformity in the young child before it has become fixed, the operative technique should not interfere with subsequent growth of the foot.

The indications for operation in patients with cerebral palsy and who have these deformities is in no way different from the indications in the patient who has had poliomyelitis except that in the poliomyelitic foot the deformity is a result of a flaccid paralysis of the tibial muscles, whereas in the cerebral palsied foot the deformity is a result of a spastic or tension paralysis of the peroneal and the triceps surae muscles. The indications for operation, namely, the reestablishment of balance, the correction of alignment, and the restoration of function, are the same in each group of patients.

Operation in Seventeen Patients

In accordance with these standards and objectives, the Grice extra-articular stabilization of the subastragalar joint was performed for the first time at Duke Hospital on Feb. 24, 1953, on a patient from the North Carolina Cerebral Palsy Hospital who had spastic quadriplegia. Between February, 1953, and June, 1956, the operation was carried out 29 times in 17 patients. Two feet were operated on in one patient, 3 years of age; 3 feet in two patients, 4 years of age; 2 feet in one patient, 6 years of age; 16 feet in nine patients, 8 to 9 years of age; 1 foot in one patient, 11 years of age; and 5 feet in three patients, 12 to 13 years of age. The average age was 8 years and 4 months. After we had observed the 16-month result of operation in the first patient, nine additional feet were operated on in 1954. Four of these patients were 9 years of age; two were 12; two were 8; and one was 13.

The results in these 11 feet warranted using the procedure in younger patients. In 1955 the operation was done bilaterally in a patient 3 years of age (fig. 1 and 2). Three feet were operated on in two patients 4 years of age. A three-year follow-up examination of these five feet demonstrated that the procedure had not interfered with growth and therefore can be carried out with safety in the young patient before fixed deformities develop.

In 16 of the 29 feet operated on, autogenous grafts were used. In the 13 feet in which homogenous grafts were used, 9 had rib strut-grafts; two had cortical strut-grafts from an ulna; two had cortical strut-grafts from skull-flaps. Because of the general trend toward the use of autogenous bone when available and in spite of the excellent results obtained in this group of patients in whom homogenous grafts were used, we now use autogenous bone in this procedure.

Types of Operative Procedures

The 29 operations were done by 10 different surgeons, 14 by one of us (L.D.B.), 1 by another senior staff member, and 14 by 8 different resident surgeons. All the end-results were evaluated by one of us (L.D.B.). Fifteen of the feet were involved with spastic paralysis only; 10 were involved with both spastic paralysis and tension athetosis; four were involved with tension athetosis only. In the 10 feet involved with mixed paralyses, in most instances the patient had a tension athetosis of a generalized nature plus spasticity in the lower extremities, with clonus, positive Babinski reflexes, hyperactive reflexes, and stretch reflexes. The time interval between operation and evaluation of results ranged from two to five years, with an average of three years and two months. The 17 patients reported have had a total of 121 surgical procedures. These operations were as follows: Grice procedure, 29; gastrocnemius aponeurosis lengthening, 25; Achilles tendon lengethening, 1; obturator neurectomy, 15; adductor tenotomy, 10; popliteal neurectomy, 5; recession of heads of gastrocnemius, 4; transplant of patella tendon, 3; transplant of a peroneal tendon, 2; transplant of the anterior tibial tendon, 1; retinaculum release at the knee, 1; posterior tibial tenotomy, 2; Intrapelvic obturator neurectomy, 2; osteotomy, 2; release of gluteus minimus (Durham procedure), 2; semitendinosus transplant to the patella, 2; Chambers subastragalar stabilization, 1; soleus neurectomy, 2; rectus femoris release, 4; release of fascia lata, 2; and release hamstring tendon, 6. These are the actual number of procedures performed; that is, a procedure done bilaterally was counted as two operations. Two procedures done through the same incision, such as an adductor longus lengthening and a neurectomy of the obturator nerve, were counted as two procedures.

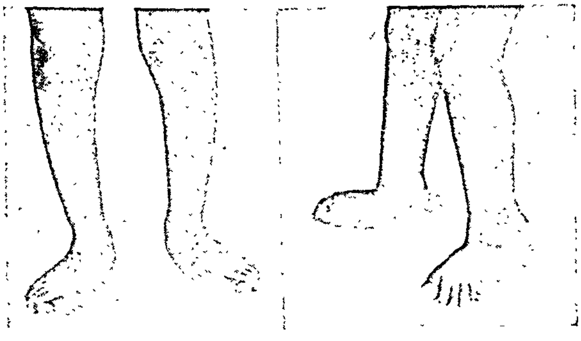

Fig. 1.—Feet of 3-year-old spastic quadriplegic child, illustrating typical equinovalgus deformities.

For the operations the 17 patients were taken to the operating room 36 times, an average of approximately two visits to the operating room per patient, with an average of 3.4 procedures per visit. It was not unusual for one of these patients to have the Grice procedure done bilaterally combined with bilateral adductor myotomy, bilateral obturator neurectomy, and bilateral gastrocnemius aponeurosis lengthening at one sitting, the multiprocedures being carried out by two operating teams. The average operating time for these multiprocedures has been one hour and 45 minutes.

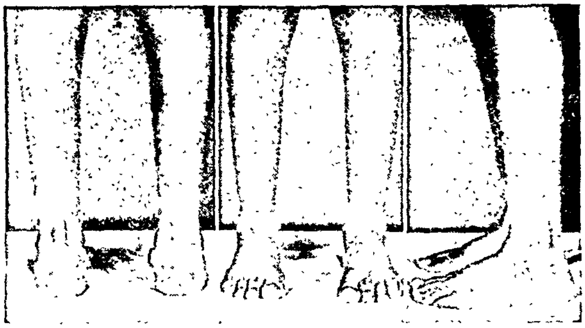

Fig. 2.—Feet of patient in figure 1 three years after lengthening of gastrocnemius aponeurosis and Grice's extra-articular subtalar stabilization.

Results

In the 29 feet operated on, the following complications, all of which were described by Grice, were encountered: 1. Due to poor placement of the grafts one of the feet had to be reoperated. Correction was carried out at the end of four weeks. The result was excellent. 2. Five feet were in too much varus. Two of the five deformities were due to overactive posterior tibial muscles. Tenotomy of the tendons of the involved muscles corrected the varus. The other three varus deformities are not sufficiently severe to warrant correction. One of these appears to be due to an overactive posterior tibial muscle. The patient is being kept under observation and, if necessary, the posterior tibial tendon can be released. In one patient one of the grafts penetrated the dorsal cortex of the astragalus. The protruding portion of the graft was absorbed. The end-result is good. In two feet, as indicated by roentgenograms, autogenous grafts appear to have been absorbed. Both feet are stable and are in anatomic alignment. Function is excellent. In one foot autogenous grafts appear, as shown by roentgenograms, to have failed to unite to the os calcis. The foot is stable, painless, and in normal alignment. Function is good.

Before therapy 11 of the 17 patients were nonambulatory. One was ambulatory with braces; one was ambulatory with a pushcart and braces. The five ambulatory patients, in addition to having cerebral palsy, had the awkward gait associated with talipes equinovalgus deformity.

Of the 17 patients only one is now considered as nonambulatory. However, he is able to get about with bilateral long leg braces, pelvic band, and a pushcart. His feet are in excellent alignment. Surgery in this patient consisted of several neurectomies and tenotomies done at the same time as the Grice procedure. This patient was severely athetoid before therapy and could not sit alone. One of the patients, because of an overactive posterior tibial muscle and mild varus of the foot, uses a short leg brace with an outside pullover strap. Eventually posterior tibial tenotomy may be needed. Ten of the 17 patients are free of both crutch and brace. One of these, because of poor balance, uses a cane. Evaluated on the basis of function and cosmetic appearance, the results in the 29 feet operated on have been good to excellent. Since therapy, 16 of the 17 patients are ambulatory.

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CLINICAL NOTES

NARCOTIC WITHDRAWAL SYMPTOMS IN NEWBORN INFANTS

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With the alarming increase in the use of narcotics among young adults, we are confronted with the serious problem of the care of infants born of mothers addicted to narcotics. Many of these infants are prematurely born [1] and the mortality rate is high.[2] These infants are particularly predisposed to asphyxia and anoxia and often have respiratory distress at birth or shortly thereafter. A high percentage of those who die show hyaline membrane disease and resorption atelectasis at autopsy. In addition to the more immediate serious effects of the narcotic on the infants during labor and shortly after birth, there may be symptoms and signs of narcotic withdrawal in those born of addicted mothers. These usually become manifest within hours after birth and, if unrecognized and untreated early, the infant may die.

The majority of the infants received in our premature station come from other hospitals and homes and are born of parents in the lower socioeconomic groups. Many of these mothers have had little or no prenatal care and often little information is available to us when the infant arrives in the hospital. Therefore, it becomes incumbent upon our nurses and physicians to be aware of this potential hazard and to be able to recognize and treat these infants who present in many instances a classic syndrome of narcotic withdrawal signs.

Because we believed that this syndrome was becoming increasingly important, a short chapter relating to the problem was incorporated in "The Care of the Premature Infant" [3] which had been in preparation since 1956 and was published in May, 1958. In a recent publication, Goodfriend, Shey, and Klein called attention to the syndrome of narcotic withdrawal in newborn infants and reviewed the literature.[4] Subsequently, articles have appeared in the literature by Cobrinik and his associates,[1] Schneck,[2] and Steg.[5] However, it is interesting that over 10 years ago Perlstein [6] called attention to congenital morphinism as a rare cause of convulsions in the newborn infants and described withdrawal symptoms in a full-term infant. We have been impressed, as have others, by the paucity of references to this problem in the literature in spite of the increase in narcotic addiction.

From the Premature Infant Station, Michael Reese Hospital.

Because of the serious nature of this problem, we believe that this report, encompassing our experience as well as that of other authors, should be widely circulated so that all physicians as well as nurses dedicated to the care of infants should be familiar with the syndrome and the management of the patient.

The table shows the more important data related to five infants, four premature and one full-term, observed by us during the past three years. The important symptoms and signs in their order of importance as observed by us and others are as follows: respiratory distress including rapid respirations, grunting, retractions, intermittent cyanosis, and periods of apnea; hyperactivity with trembling, twitching, or convulsions; shrill, high-pitched cry; sucking of hands and fingers as though constantly hungry; vomiting; diarrhea; hyperpyrexia; excessive weight loss; sneezing; diaphoresis; anorexia; yawning; and incomplete Moro reflex.

Data Concerning Narcotic Withdrawal Symptoms in Five Infants Born of Addicted Mothers

Case	Sex	Race	Mother's Age, Yr.	Birth Wt., Gm.	Drug Used	Probable Duration, Yr.	Dose(Mg.) and Time(Hr.) Prior to Delivery	Type of Delivery	Condition at Birth	Symptoms	Treatment	Recovery, Days	Remarks
1	M	N	32	1,610	Heroin	3	3.8;2-3	Spontaneous, cephalic	Active, crying, good color, Moro good; pupils normal, slight edema of eyelids	Slight periods of apnea and cyanosis; sucking good; frequent vomiting	Oxygen, 3 days	4	Discharged on 47th day; w 2,125 Gm., condition good
2	F	N	29	1,260	Heroin	1½	30;3	Precipitate	Poor; asphyxia and cyanosis; grunting respirations, shallow and rapid, retractions	At 14-16 hr., hyperactivity, trembling; shrill cry; rapid respirations; cyanosis; long periods of apnea; acts hungry constantly; sucks fists and fingers; intermittent severe tremors	Oxygen continuously; tincture of opium, 0.02 cc. q 4 hr.; penicillin and streptomycin	Died at 72 hr. with continuous withdrawal symptoms and respiratory distress	Postmortem; patent ductus arteriosus; coarctation of aorta; atelectasis; hyaline membrane
3	M	N	37	1,825	?	?	?	Spontaneous, cephalic	Good	Excessive vomiting first 48 hr.	Oxygen 48 hr.	2	Discharged on 44th day; wt 2,300 Gm., condition good
4	M	N	29	2,050	Heroin Morphine	?	?	Spontaneous, cephalic	Poor; hypertonic; inspiratory crow; loud, shrill cry	Third day appeared constantly hungry; sucking fists continuously; diarrhea. 6th day, hyperactive, tremors, temp. 106.2F; sucking constantly, 7th day temp. normal	Phenobarbital on 6th day; chloramphenicol, 50 mg. q 8 hr., 6th-8th day	7	Discharged on 34th day; wt 2,910 Gm., condition good
5	F	W	27	2,930	Heroin	14	?;1-2	Spontaneous, cephalic	Good; appeared normal	At 24 hrs., shrill cry, hyperactive; clonic convulsions. Phenobarbital 5 days with improvement. 24 hr. later, infant again hyperactive, trembling. Phenobarbital additional 5 days.	Phenobarbital 8-15 mg. q hr., 10 days	10	Discharged on 22nd day; wt. 2,930 Gm. condition good

Comment

The symptoms may appear shortly after birth or be delayed several hours or more, probably depending on the time relationship of the mother's most recent injection of narcotic and/or the dose to the time of birth. It has been stated that withdrawal symptoms do not occur unless the mother has taken the drug constantly, the last dose being administered less than a week prior to the birth of the baby. In our group we were able to confirm that three mothers were taking heroin intravenously; one, both heroin and morphine, and one we presumed was taking heroin but we had no verification. All were habitual users, and the known duration of addiction, as self-admitted, was 3, 1½, and 14 years respectively. The duration of addiction by the other two is unknown. As most addicts are prevaricators, any admissions may not be reliable In none of the five mothers were we able to trace the onset of addiction to the prolonged use of narcotics for the pain of disease or injury.

The syndrome of narcotic withdrawal in the newborn infant presents two significant signs that have been recorded by all observers: (1) hyperactivity, trembling, twitchings, or convulsions, and (2) shrill, high pitched, prolonged cry. For those unfamiliar with the syndrome and unaware of addiction by the mother, tetany, intracranial hemorrhage, meningitis, hypoglycemia, or other causes of convulsions may be suspected, and a great deal of time may be lost by performing unnecessary laboratory tests in an attempt to establish a diagnosis.

The almost constant sucking and chewing on the hands and fingers as if hungry are rather dramatic and, we believe, unique signs, particularly in the premature baby. Vomiting and diarrhea are frequent and may be the only signs in the absence of the more typical nervous system manifestations. Respiratory distress is frequent, appears early, and may be manifested by cyanosis and rapid grunting respirations with or without retractions. The latter is highly suggestive of hyaline membrane disease, particularly when associated with periods of apnea or rapid respiratory rate. Mortality is definitely related to the severity of respiratory distress, which in turn is partly dependent on the degree of intrauterine anoxia resulting from narcotization in utero. Case 2 in the table is an example. Gradual improvement of the respiratory distress usually signifies a good prognosis. Fever, particularly hyperpyrexia, has been described and may be significant particularly in the premature infant in whom fever is usually conspicuously absent or slight in the presence of infection. One of our infants, case 4 (see table), developed a temperature of 106.2 F (41.2 C) on the sixth day but it fell to normal within 24 hours. Although an antibiotic had been given for 48 hours, we do not believe that the infant had an infection. None of the other four infants in our group developed fever. Other withdrawal symptoms comparable to those found in adults and described by Schneck[2] were not present in any of our patients. He mentions yawning, nasal stuffiness, sneezing, and increased sweating.

In untreated cases, the various signs may persist for five or six days. The time for recovery in the four of our five infants ranged from 2 to 10 days. One was of particular interest since on discontinuing phenobarbital after five days of continuous administration there was a recurrence of symptoms 48 hours later. After an additional five days of phenobarbital therapy, there was no return of symptoms.

For the treatment of withdrawal symptoms it has been recommended that morphine, tincture of opium, or camphorated tincture of opium be used in diminishing doses over a period of several days consistent with disappearance of symptoms and signs. We believe that if sedatives are required barbiturates are effective and safer than opiates. Two of our patients received no sedation, two received phenobarbital, and one tincture of opium. Recently Murray[7] treated five infants with methadone in doses of 0.5 to 1 mg. administered every 4 to 12 hours and continued in decreasing doses for several days or weeks. Tranquilizers, chlorpromazine (Thorazine) and resperine, have been found effective.[2] Three of our infants received oxygen, one continuously up to the time of death at 72 hours (case 2), and the other two for 72 and 48 hours respectively (cases 1 and 3). In the presence of respiratory distress, appropriate antibiotics should be used, as pneumonia is a likely complication. Feedings should be withheld until vomiting has ceased and the danger of aspiration has passed. Intravenously administered fluids may be necessary during the first 48 to 72 hours and possibly longer.

Summary

The increase in incidence of narcotic addiction among adults during the past few years has resulted in a rise in the number of infants born of addicted mothers. A large percentage of these infants are prematurely born, and both morbidity and mortality rates are high. Withdrawal symptoms frequently appear shortly after to several hours after birth. Recovery usually occurs if the infants do not die from early respiratory distress and if withdrawal symptoms are recognized early and adequately treated.

Five infants, four premature and one full-term, born of mothers addicted to narcotics during the past three years revealed withdrawal symptoms. Hyperactivity, trembling, twitchings, or convulsions; shrill, high-pitched, prolonged cry; and the appearance of being constantly "hungry" with sucking of the hands and fingers are particularly significant symptoms and signs.

Proper treatment consists of the administration of sedatives, preferably diminishing doses of barbiturates, oxygen and antibiotics for respiratory distress, and fluid and electrolytes parenterally when indicated in the presence of vomiting, diarrhea, and/or dehydration.

664 N. Michigan Ave. (11) (Dr. Kunstadter).

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COUNCIL ON DRUGS

NEW AND NONOFFICIAL DRUGS

Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Drugs are based on the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary.*

Oleandomycin Phosphate.—The phosphate salt of an antibiotic substance elaborated by species of Streptomyces antibioticus.—The compound has an empirical formula of $C_{35}H_{61}NO_{12}.H_3PO_4$, but its precise chemical structure has not as yet been determined.

Actions and Uses.—Oleandomycin phosphate exhibits antimicrobial activity in vitro against gram-positive organisms, being most active against staphylococci, streptococci, and pneumococci. It likewise inhibits the in vitro growth of a few gram-negative bacteria, notably Hemophilus influenzae, gonococci, and meningococci. Oleandomycin has negligible activity against coliform bacteria and other gram-negative organisms of the enteric group.

Oleandomycin phosphate is useful for the treatment of certain infections due to gram-positive coccal organisms such as Staphylococcus pyogenes var. aureus, beta-hemolytic streptococci, and pneumococci. However, in beta-hemolytic streptococcic or pneumococcic infections, penicillin or the tetracyclines are usually considered to be the agents of choice. In regard to Staph. pyogenes var. aureus, there is in vitro and clinical evidence to show that oleandomycin is active against strains of this organism, including some that are resistant to other commonly employed antibiotics. Thus, the drug has been employed successfully for the treatment of a variety of the milder and more severe staphylococcic infections, especially those refractory to erythromycin, penicillin, streptomycin, and the tetracyclines.

On the basis of both in vitro susceptibility tests and clinical experience, the actions and uses of oleandomycin appear to be quite similar to those of erythromycin. In general, both antibiotics are employed for the same type of infections and are subject to similar limitations in spectrum and effectiveness. There is some evidence to indicate the usefulness of oleandomycin against such gram-positive organisms as alpha-hemolytic streptococci and nonhemolytic streptococci. It has also been used in infections caused by such gram-negative organisms as meningococci, gonococci, or H. influenzae, but, except for gonorrheal infections, the evidence is inadequate to substantiate such use. Some evidence of in vitro activity against certain viruses, rickettsias, and protozoa has been presented; however, there is insufficient clinical evidence to substantiate its effectiveness against such micro-organisms.

On the basis of present knowledge, prolonged therapy with oleandomycin can produce oleandomycin-resistant strains of staphylococci. Staphylococcic cross resistance between oleandomycin and erythromycin can occur in some freshly isolated strains, although most erythromycin-susceptible strains are susceptible to oleandomycin. Complete cross resistance between oleandomycin and erythromycin, carbomycin, and spiramycin can be rapidly and regularly developed in vitro. Accordingly, as with any antibiotic, accurate bacteriological identification of the infecting organism and susceptibility tests are indicated before initiating therapy. When indicated, oleandomycin should be administered in sufficiently large amounts to control the infection before resistance can develop, and susceptibility tests should be repeated to insure that the organisms remain susceptible to its action. The valuable antistaphylococcic properties of oleandomycin can best be preserved by preventing its indiscriminate use.

The toxicity of oleandomycin seems to be low. Side-effects reported thus far have been limited to occasional reactions of cutaneous hypersensitivity, loose stools, and, rarely, diarrhea. The possibility of overgrowth of nonsusceptible organisms (notably Candida) exists but is considered to be much less likely than when the broader spectrum antibiotics are used.

Dosage.—Oleandomycin phosphate is administered orally, intravenously, and, occasionally, intramuscularly. The oral dosage for adults ranges from 250 to 500 mg. four times daily, the amount administered depending on the type and severity of the infection. The suggested dosage for children is approximately 30 mg. per kilogram of body weight per day given in divided doses.

For intravenous use, a sterile dry powder of the drug is diluted with either sterile water for injection, isotonic sodium chloride for parenteral use, or sterile 5% dextrose solution to make at least 250 cc. of solution not to exceed 2 mg. per cubic centimeter. This diluted solution is then infused slowly at a rate not to exceed 20 mg. (10 cc.) per minute. In the average adult, 1 to 2 Gm. daily, administered in divided doses every 6 to 12 hours, should be sufficient for most acute infections. In severe and fulminating infections, a daily maximum of 3 Gm. may be utilized in adults. In infants and children, the usual intravenous dose is 40 mg. per kilogram of body weight daily. Care should be taken to avoid extravasation of the drug into adjacent soft tissues. Oral therapy should be substituted for intravenous infusion as soon as feasible.

In occasional instances in which neither oral nor intravenous therapy is feasible, oleandomycin phosphate may be administered by intramuscular injection. Since the drug is irritating to the tissues by this route, it should be mixed with a local anesthetic prior to injection. For such use, 7.5 cc. of a 1 to 2% solution of procaine hydrochloride is added to 500 mg. of the dry, sterile powder of oleandomycin phosphate, so that each 1.5 cc. of the resulting solution will contain 100 mg. of the antibiotic. The usual intramuscular dose for adults is 200 mg. every six to eight hours by deep intragluteal injection, alternating sites and buttocks being used. Dosage for infants and children is reduced according to age, weight, and severity of infection. Extreme care should be taken to avoid injecting the solution containing procaine into a vein. Likewise, this solution should not be injected subcutaneously or into the fat layer; inadvertent injection into these tissues may cause pain and induration. Intramuscular therapy should be discontinued as soon as medication by the oral route is feasible.

Preparations: capsules 250 mg.; powder (injection) 500 mg.

Applicable commercial names: Matromycin, Oleandomycin Phosphate.

Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc., and Wyeth Laboratories, Division of American Home Products Corporation, cooperated by furnishing scientific data to aid in the evaluation of oleandomycin phosphate.

Triacetyloleandomycin.—The triacetyl ester of an antibiotic elaborated by species of Streptomyces antibioticus.—The compound has an empirical formula of $C_{41}H_{67}NO_{15}$, but its chemical structure has not been determined.

Actions and Uses.—Triacetyloleandomycin has the same actions and uses as oleandomycin phosphate. After oral administration, the triacetyl ester is more rapidly and completely absorbed from the gastrointestinal tract than is the same amount of the phosphate salt. Hence, it produces higher blood levels, and fewer or less frequent doses may be used.

Dosage.—Triacetyloleandomycin is administered orally. Dosage is the same as that for oleandomycin phosphate.

Preparations: capsules 125 mg. and 250 mg.; suspension (oral) 25 mg. per cc.

Applicable commercial name: Cyclamycin.

Wyeth Laboratories, Division of American Home Products Corporation, cooperated by furnishing scientific data to aid in the evaluation of triacetyloleandomycin.

CHEMICAL LABORATORY

The Chemical Laboratory has authorized publication of the following statement.

WALTER WOLMAN, Ph.D., *Director.*

Monographs of tests and assays for new and nonofficial drugs adopted by the Chemical Laboratory of the American Medical Association represent an expression of opinion as to what might constitute adequate tests and assays to serve as a reference guide to those interested in the identity and quality of a new and nonofficial drug.

Completed monographs are published in the journal *Drug Standards* for those interested in the details of the procedures. Monographs on the following drugs have appeared in the July-August, 1958, issue of that journal. The cooperation of the listed pharmaceutical firms that furnished samples and data is acknowledged.

Aminopentamide sulfate.............(Bristol Laboratories, Inc.)
Decamethonium bromide..(Burroughs Wellcome & Co., Inc.)
Phensuximide..(Parke, Davis & Co.)
Piperazine calcium edathamil........(Endo Laboratories, Inc.)
Sitosterols...Eli Lilly & Company)
Tetrahydrozoline hydrochloride...........(Pfizer Laboratories)

DIAGNOSTIC PROBLEMS

HEMOLYTIC AND HYPOCHROMIC ANEMIA AND ELEVATED COLD AGGLUTININ TITER IN A SEVEN-YEAR-OLD CHILD

Clinical Pathological Conference PM (423-57), Dec. 20, 1957, from the Department of Pathology and the Hektoen Institute for Medical Research of Cook County Hospital, Chicago, presented for publication by Daniel S. Kushner, M.D., and Paul B. Szanto, M.D.

Clinical Data

A 7-year-old Negro boy was admitted to the Children's Division of Cook County Hospital on Sept. 25, 1956, because of cramping, migratory abdominal pain of one week's duration. He had had no anorexia, vomiting, constipation, diarrhea, bloody or tarry stools, joint pains, or jaundice. He had no known contact with lead, insecticides, or rat poison. He was receiving no medication. He had always been a poor eater, preferring sweets to meat or vegetables. He was the eighth of nine children in his family. The pregnancy and delivery were normal, and his birth weight was 6 lb. (2,721.55 Gm.). He sat up at 5 months, walked at 12 months, and talked at 18 months. He had received triple toxoid, smallpox vaccination, and Salk vaccine. His only childhood disease had been mumps. The family history was negative for chronic diseases. A younger sibling had died of unknown causes in infancy. The parents and seven siblings are living and well.

Examination disclosed a small, alert, and cooperative boy in no distress but with striking pallor. His pulse was 80 per minute, respiration 18, temperature 99.6 F (37.6 C), and blood pressure 118/50 mm. Hg. His conjunctivas and scleras were pearly white. A few small discrete nontender posterior cervical lymph nodes were palpated. His cardiac apex beat was palpated in the fifth interspace in the midclavicular line. The abdomen was soft and flat. The liver edge was palpable one fingerbreadth below his right costal margin. A firm spleen tip was palpated one to two fingerbreadths below his left costal margin. His hemoglobin level was 3.6 Gm. per 100 ml.; the erythrocyte count was 2,490,000 per cubic millimeter and leukocyte count 12,800 per cubic millimeter, with a differential count of 67% polymorphonuclear leukocytes, 7% band forms, 1% eosinophils, 4% basophils, 16% lymphocytes, and 5% monocytes. Sickle cell preparations were negative on three occasions. His platelet count was 260,000 per cubic milimeter. Hemoglobin electrophoresis revealed an AA pattern; the fetal hemoglobin level was 1.8%. Urinalysis was negative, including tests for coproporphyrins. His blood cholesterol level was 210 mg. per 100 ml., total serum protein level 7 Gm. per 100 ml., serum calcium level 5.3 mg. per 100 ml., and indirect serum bilirubin level 2.1 mg. per 100 ml. His alkaline phosphatase level was 2.1 Bodansky units, and the icterus index was 10 units. A roentgenogram of his chest revealed normal heart and lungs. An aspiration biopsy of the sternal marrow was performed.

The patient was given three blood transfusions, after which all signs and symptoms disappeared, and he was discharged on Oct. 16 in excellent condition. He was readmitted on Feb. 12, 1957, with a history of fatigue, listlessness, lethargy, generalized weakness, and shortness of breath of two days' duration. Examination revealed an extremely pale, acutely ill child with white mucous membranes, pale tongue, and extremely pale palms and soles. He was lethargic and very weak. His pulse was rapid and regular; respirations were rapid and shallow. He was apprehensive. His spleen and liver were not palpable. Initial and subsequent blood cell counts are shown in the table. Hemoglobin electrophoresis again revealed an AA pattern, with a 1.1% fetal hemoglobin level; his mother's pattern was also AA; a Coombs' test was negative. Cold agglutinins were positive at a titer of 1:64 on Feb. 15. The nonprotein nitrogen level was 32 mg. per 100 ml. A tuberculin skin test was negative. Urinalysis was negative on repeated occasions, except for a trace of urobilinogen on Feb. 15, when the icterus index was 18 units; cephalin flocculation was negative, thymol turbidity 1.8 units, and gamma globulin 0.79 Gm. per 100 ml. A roentgenogram of his chest on Feb. 12 disclosed increased haziness in both lung fields, suggesting bilateral pneumonitis. On Feb. 20, direct and indirect Coombs' tests were negative; cold agglutinins were positive, 1:128, and cold hemolysin 1:4. It was technically impossible to type his blood. A needle biopsy of his sternal marrow was again performed.

He was given 300 cc. of type O–Rh negative blood on each of two successive days. He had low-grade fever and coughed frequently. The tip of his spleen became palpable. Fine rales were heard

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Dr. Sanford is Chief of Staff, Children's Division, Cook County Hospital, and Chairman, Department of Pediatrics, University of Illinois, College of Medicine.

throughout his chest. Penicillin and tetracycline were given for 11 days. On Feb. 19, he received 4 cc. of gamma globulin. On Feb. 25, he was afebrile, ambulatory, and asymptomatic, and all physical signs had regressed, but his erythrocyte count continued to be low (1,800,000 per cubic millimeter), and on March 15 cortisone therapy was instituted in dosage of 225 mg. daily for 14 days. On March 22, he developed low-grade fever without apparent cause, which abated after penicillin therapy, and his condition was again considered good. On March 27, he had a sudden hematemesis and lost 50 cc. of blood; 40 minutes later he had a massive upper gastrointestinal tract hemorrhage. His blood pressure was 110/0 mm. Hg. He was cold, clammy, pale, and gasping for breath. Ten minutes later, he had another massive hemorrhage of bright red blood from the nose and mouth, and he died.

Hematological Data

Date, 1957	Hemoglobin Level, Gm./100 Ml.	Red Blood Cells, No./Cu. Mm.	White Blood Cells, No./Cu. Mm.	Polymorphonuclear Cells, %	Lymphocytes, %	Monocytes, %	Reticulocytes, %	Platelet Count	Bone Marrow Studies	Sickle Cell Preparations
2-12......	3.0	250,000 to 500,000	33,700	91	3	6	16.3	o.k.	...	neg.
2-14......	8.0	2,730,000	23,500	84	9	1	...	o.k.	done	...
2-15......	...	...	...	...	...	...	24.0	...	...	...
2-18......	8.0	...	...	...	...	...	14.8	...	...	...
2-19......	7.0	2,210,000	17,000	...	...	...	...	o.k.	...	neg.
2-22......	8.4	3,380,000	13,650	...	...	...	...	...	...	...
3- 2......	...	...	...	...	...	...	...	...	done	...
3- 9......	3.8	1,880,000	14,950	64	24	3	...	...	...	...
3-10......	4.5	2,226,000	16,000	69	15	2	...	...	...	...

Clinical Discussion

Dr. Heyworth Sanford: The problem concerns a 7-year-old boy who was admitted because of abdominal pain. From a clinical standpoint, abdominal pain is the second most common symptom for which children over a year old are examined by the pediatrician. Anorexia is the most frequent cause. Knowledge of the character of his pain was not helpful, and it was not associated with other gastrointestinal symptoms or with accidental or therapeutic ingestion of toxic agents.

The objective finding of significance was severe anemia, obviously raising the consideration of sickle cell anemia as a cause for the abdominal pain. The cardiac murmur, cervical lymphadenopathy, and hepatosplenomegaly are entirely consistent with a diagnosis of sickle cell anemia; but, to the amazement of the staff, the laboratory data failed to confirm the presumption of sickle cell anemia. The anemia was severely hypochromic, with a color index just under 0.5. Moreover, he had a polynucleosis. This is a far cry from the blood findings one would expect in a hemolytic anemia. The sickle cell preparations were repeatedly negative, and we find a normal hemoglobin electrophoresis, excluding any possibility of sickle cell disease. Nevertheless, the slightly increased indirect bilirubin level and the subsequent observation of increased urobilinogen are suggestive of a mild hemolytic process. In the course of the diagnostic efforts, the child was treated with blood transfusions; he improved and, since nothing more could be found, was discharged in satisfactory condition.

On the second admission four months later, he was much more severely ill, with manifestations of profound anemia. The difficulties encountered in typing his blood are of special interest and may have been caused by (1) the low red blood cell count, (2) interference by cold agglutinins, and (3) the presence of some basic disease process which directly caused the difficulty. Nevertheless, he was given a transfusion and improved until he developed a pneumonitis. This apparently responded to treatment, but the anemia increased, perhaps as a result of the infection.

There seem to be two clues to the diagnosis here. The first is the blood examination which revealed a hypochromic anemia with a leukocytosis consisting of numbers of polymorphonuclear leukocytes. More importantly, the reticulocyte counts ranged from 14 to 24%. That means that the body was doing its best to regenerate blood, rapidly throwing new forms out into the blood stream. A reticulocytosis like this may be the result of (1) regeneration after hemorrhage, (2) regeneration related to hemolytic anemia, and (3) a deficiency anemia.

The second lead concerns the cold agglutinins, whose presence was suggested by the blood typing difficulties, and which, in fact, were increased to a titer as high as 1:128. We find cold agglutinins in the following conditions: hemolytic anemia; certain infections, such as infectious mononucleosis or virus pneumonia; liver disturbances; and plasma cell (multiple) myeloma. The cold hemolysin, which was also described, is usually associated with paroxysmal hemoglobinuria, but this boy did not have hemoglobin in his urine. To return to the problem of anemia, the various causes of acute blood loss must be considered, such as result from injury, accident, operation, bleeding from esophageal varices, and duodenal or gastric ulcers; but there is nothing here to suggest acute hemorrhage, and the low color index means chronic blood loss with the development of iron deficiency. Reticulocytosis frequently occurs after gastrointestinal bleeding from Meckel's diverticulum, intestinal polyps, or telangiectases in ulcerative colitis and chronic intussusception. Those are all unlikely in this situation. Diagnoses of diseases in the dyshematopoietic group are rather well excluded by the absence of significant disturbance in the leukocytes or platelets and by what we must assume were two negative aspiration biopsies of the bone marrow.

With regard to tumors, neuroblastoma is a common enough condition and does produce abdominal pain and anemia; but this child had no signs of abdominal tumor, or peripheral evidences of bone marrow replacement, in the form of leukopenia or thrombocytopenia. For similar reasons, the diagnoses of lymphoma and leukemia can be excluded. With regard to the hemolytic anemias, a diagnosis of congenital hemolytic anemia can be dismissed because of the absence of jaundice. Sickle cell anemia can also be excluded. The acquired hemolytic anemias may result from poisons, circulating hemolysins, or other antibodies. The cold agglutinins, perhaps in relation to a virus pneumonia, could have caused the hemolysis.

This would leave unexplained the terminal gastrointestinal hemorrhage. Is there any condition, which is not an infection, which will produce a pseudohemolytic condition, or is there any kind of bleeding where the blood is trapped and suddenly hemorrhage appears? Blood trapping and infection occur, for example, in trypanosomiasis, with manifestations of pallor, anemia, and splenomegaly; but the tsetse fly does not exist in this climate. Is there any other place where the patient could have had blood trapped?

A rare condition associated with the trapping of blood is known as idiopathic pulmonary hemosiderosis. In this condition, there is a decrease in elastic fibers so that the pulmonary tissues do not expand; this leads to stasis of blood in the pulmonary capillaries, hemosiderosis, and bleeding into the lung. The condition occurs in young children and is accompanied by an atypical hemolytic anemia, that is, anemia with a slight increase in indirect-reacting serum bilirubin level and a slight urobilinogenuria.

The final hemorrhage would still demand explanation. There was no evidence of cirrhosis or marked splenomegaly to support a diagnosis of chronic congestive splenomegaly with bleeding from esophageal varices. The child may have had two independent conditions, such as hemolytic anemia, on whatever basis, and ulceration into the pulmonary vessels from tuberculosis; but there was no tuberculous infiltration shown in the chest film, and the tuberculin test was negative. The child was given cortisone, which was indicated for the hemolytic anemia; but this does aggravate gastric and duodenal ulcers. We could postulate hemorrhage from a previously silent peptic ulcer under the influence of the steroid therapy. I would still diagnose hemolytic anemia related to idiopathic pulmonary hemosiderosis or perhaps to an infectious process. I would like to hear the diagnoses of the medical students. (The medical students' diagnoses submitted were aleukemic leukemia, hemolytic anemia, histoplasmosis, normocytic metabolic anemia or macrocytic anemia of pernicious anemia type [nutritional or metabolic] due to sprue.)

Dr. Aaron Grossman: In view of the active hemolytic process, would a splenectomy have been advisable?

Dr. Sanford: If antibodies are being formed by the reticuloendothelial system, we first try to block them by using cortisone. If this fails, the next step is splenectomy. In this case the boy had no splenectomy, because he was improving on cortison therapy.

Dr. Paul B. Szanto: An aspiration biopsy [illegible] sternal bone marrow was performed. I sho[illegible] to ask Dr. Sanford to comment on the sli[illegible]

Dr. Sanford: Some megaloblasts and [illegible] normoblasts are present, as evidenc[illegible] erythropoietic activity.

Clinical Diagnosis.—The clinical d[illegible] hemolytic anemia, due to idiopathic pulm[illegible] mosiderosis, and terminal steroid-induced b[illegible] peptic ulcer.

Pathologist's Report

Dr. Szanto: The body was that of an underdeveloped, moderately emaciated boy. The pleural and peritoneal cavities were free of fluid and adhesions. There were no varices in the esophagus or gastric cardia. The stomach contained 40 cc. of mucoid, blood-tinged fluid. Neither the stomach nor the small or large intestine revealed any lesion. No source of the gastrointestinal hemorrhage was found. The liver was moderately enlarged (1,000 Gm.), firm, and pale tan. On cut section, the lobular pattern was distinct. Microscopically, moderate fatty changes and extramedullary foci of erythropoiesis were seen.

The kidneys were grossly and microscopically normal, except for pallor, especially of the renal pyramids. The spleen was moderately enlarged (100 Gm.) and firm. Microscopically, there was proliferation of the reticulum cells in the red pulp, as commonly seen after hemorrhage. The bronchopulmonary lymph nodes were moderately enlarged and showed similar reticulum-cell proliferation. The bone marrow showed the changes seen in the biopsy specimen, namely, evidence of increa[illegible] erythropoietic activity, with numerous normoblasts and some megaloblasts. Turnbull's reaction for iron deposit in the bone marrow was negative. The heart (160 Gm.) was of normal size and configuration. There was no evidence of rheumatic heart disease or any type of myocarditis.

The lungs were heavier than normal (850 Gm.) and had a peculiar rusty-brown color and firm nodular consistency, reminiscent of that seen in passive congestion secondary to mitral stenosis. We must emphasize, however, that this patient did not have mitral stenosis. This rusty-brown color and indistinctly nodular appearance, in the absence of mitral stenosis, is practically diagnostic for idiopathic pulmonary hemosiderosis, if some rare type of pneumoconiosis (siderosis of the lungs) is excluded.

Numerous large sections taken from the various segments of the lungs showed a uniform type of lesion. The alveoli contained numerous macrophages loaded with coarse brown pigment (fig. 1 and 2), which gave a positive iron reaction as hemosiderosis does (fig. 3). Some of the alveolar septums were thickened and quite cellular. Bronchioles and bronchi failed to reveal pathological changes. Special stains revealed interruption or even complete absence of elastic fibers in the alveolar septums. Occasionally, these fibers appeared thickened, frayed, or aggregated (fig. 4). The elastic fibers in the vascular walls were impregnated with iron. These histological findings fulfill the criteria for the diagnosis of idiopathic pulmonary hemosiderosis.

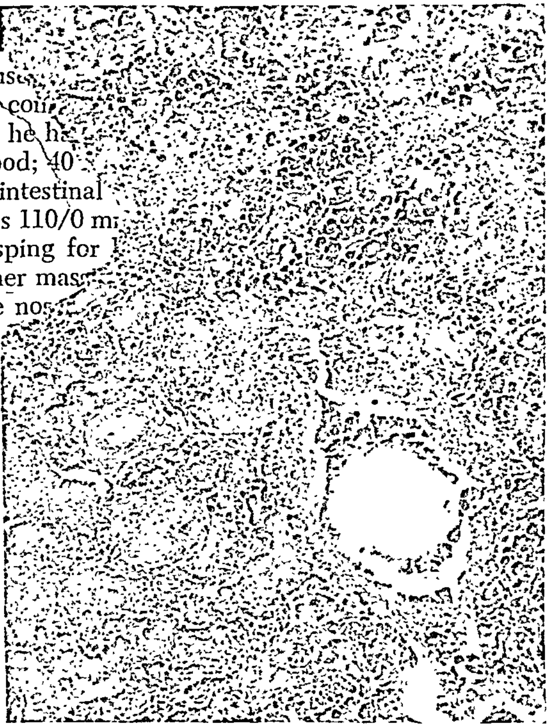

Fig. 1.—Numerous hemosiderin-containing macrophages in alveoli.

Pathological Diagnosis.— The pathological diagnosis was idiopathic pulmonary hemosiderosis, bilateral; bronchopulmonary lymphadenitis; and moderate splenomegaly (reactive chronic splenitis).

Comment

Dr. Szanto: The gross and microscopic findings in the lungs fulfill the criteria set for idiopathic pulmonary hemosiderosis or essential brown induration of the lungs. The hemoptysis and the pulmonary symptomatology (cough, chest pain, dyspnea, cyanosis, and expectoration) in this case were not prominent. Hemoptysis, which may be profuse and recurrent, is not always obvious because, just as was the case with this patient, the blood may be swallowed. Then, the pulmonary bleeding manifests itself either by the presence of occult blood in the stool or by hematemesis.

This rare disease, known since 1931, after the classic description by Ceelen [1] (although it was also described by Virchow [2]), usually occurs in childhood. A few cases affecting adults have been reported.[3] Some have been diagnosed by lung biopsy.[4] The subject may be of either sex and is often underweight for his age. Clubbing of the fingers may be present and may regress during spontaneous remissions.[5]

Apart from the obvious respiratory distress, which may require oxygen therapy, the most striking feature is anemia (pulmonary hemosiderotic anemia), which, though often profound, responds well to blood transfusions. Frequently, this anemia presents features suggestive of hemolysis, reflected in reticulocytosis, elevated serum (indirect) bilirubin level, moderately increased urobilinogen level, and in some patients mild jaundice. Red blood cell fragility is within normal limits. The anemia is hypochromic, microcytic, or normocytic. Leukocytosis may be present. Platelet counts and bleeding and clotting times are normal, but the cold agglutinin titer is frequently elevated, just as in this case.[5]

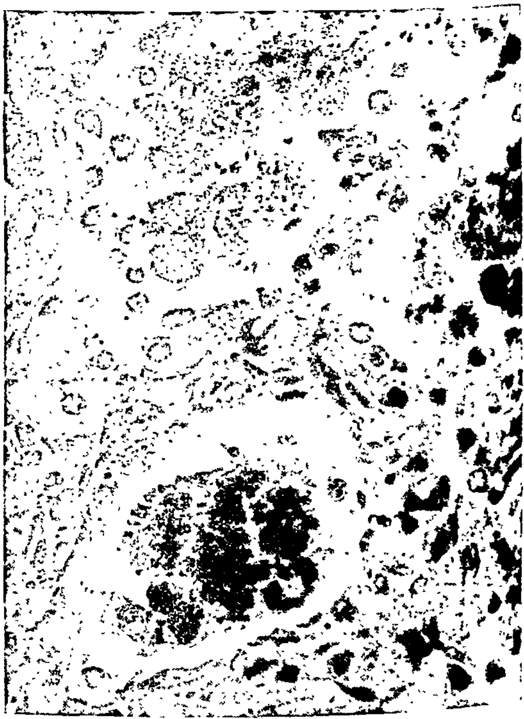

Fig. 2.—Hemosiderin-containing macrophages in alveoli (same as in figure 1 but with higher magnification).

The severe anemia associated with this disorder cannot always be explained by hemorrhage into the lung alone. Severe anemia has been observed in instances where no significant radiologic abnormality in the lung fields was present. Sputum, when present, contains numerous hemosiderin-laden macrophages (heart failure cells). Episodes of microcytic, hypochromic, iron-deficiency anemia of unknown cause associated with pulmonary infiltration, should lead to consideration of the possibility of this disease,[6] which is usually fatal a few years after the first attack.

Pathologically, the lungs in the previously reported cases grossly had the typical appearance of brown induration. Histological changes were characterized by diffuse intra-alveolar hemorrhages, leading to diffuse and nodular siderophagia, with heart failure cells, and fibrous thickening of the alveolar septums, complicated in some instances by the development of smooth muscle fibers,[1] and cuboidal metaplasia of the alveolar lining cells. In some instances, long-standing pulmonary hemosiderosis has led to pulmonary fibrosis, resulting in cor pulmonale. Nodular fibrosis resembling a miliary type of lesion may be present radiologically and pathologically.

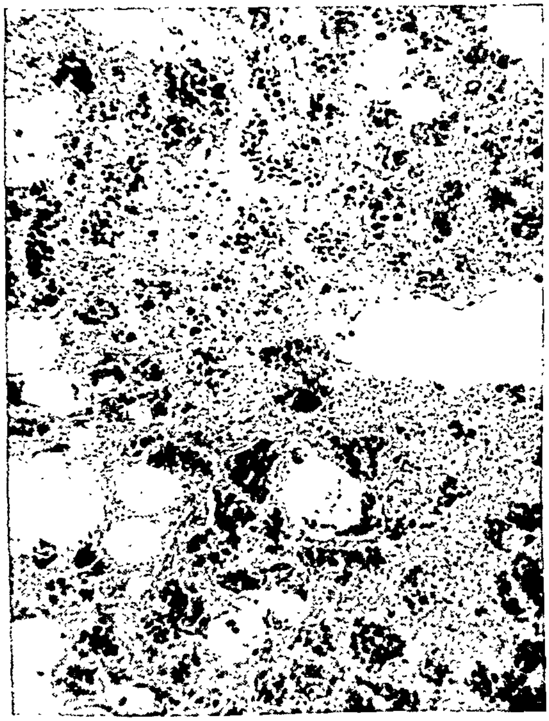

Fig. 3.—Hemosiderin identified histochemically by Prussian blue reaction (Turnbull's stain).

An interesting feature of this peculiar disease is the alteration of the elastic framework of the lung. The septal and vascular elastic tissue in most cases has shown degenerative changes, elastic fibers being frayed, fragmented, condensed, or completely absent. Foreign body giant cells may surround the degenerated elastic fibers.[5]

While the pulmonary alterations dominate the pathological findings in this disease, the spleen may be moderately enlarged, presenting follicular hyperplasia or a reactive splenitis; the regional bronchopulmonary lymph nodes may contain numerous hemosiderin-laden macrophages; and the bone marrow shows increased erythropoietic activity, secondary to severe blood loss.

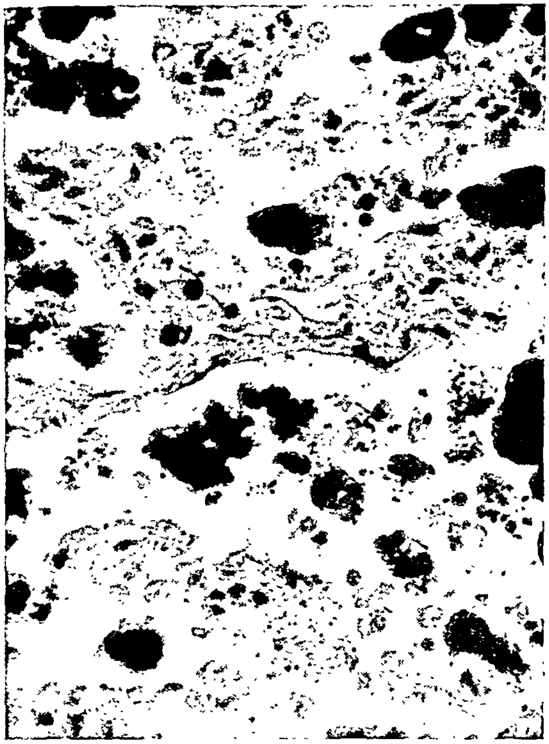

Fig. 4.—Elastic fibers absent in some areas, in others aggregated or frayed.

The cause of death varies. Acute suffocation and right heart failure cause death in many instances. Anemia is usually not the cause of death, although in this case pulmonary hemorrhage and shock superimposed on a severe chronic anemia accounted for the death.

The cause of the disease is unknown. It would be attractive to assume that the primary lesion is a congenital or acquired damage of the septal and vascular elastic tissue of the lung inflicted by an unknown agent. The morphologic alteration of the elastic tissue increases fragility of the pulmonary vasculature and causes the pulmonary hemorrhage[7]; however, in a few reported patients, who presented the typical clinical findings, death occurred at a stage of the disease when the elastic tissue of the lungs was intact. Therefore, it must be assumed that the alteration of the elastic tissue develops in a later stage of the disease. Another etiological consideration of potential therapeutic significance is that of Steiner, who diagnosed pulmonary hemosiderosis in a boy on the basis of lung biopsy. His patient responded well to splenectomy. On that basis, the author[8] assumed that pulmonary hemosiderosis is an immunoallergic condition, whereby the lung is the shock organ. Therapeutic response to corticotropin and cortisone also has been reported in this disease.[3]

Because of the alteration of the elastic tissue, idiopathic pulmonary hemosiderosis appears to be related to pulmonary elastic disease (or endogenous pneumoconiosis), a rare condition described by Walford and Kaplan.[9] This clinicopathological entity occurs in adults, usually in middle-age, and is characterized by a progressive clinical course, with pulmonary symptoms and cor pulmonale. Microscopically, the vascular and interstitial elastic tissue shows severe degenerative changes, without evidence of severe pulmonary hemosiderosis. While the clinical course in the latter condition is episodic, in pulmonary elastic disease it is persistent and progressive. Furthermore, the elastic tissue changes are not associated with hemosiderosis, or the hemosiderosis is very much in the background. On that basis, a separation of these two clinicopathological entities should be retained.

Normal Laboratory Values for Tests Cited in Text

Hemoglobin paper electrophoresis normally shows an AA pattern, demonstrated by the rapid migration of a single hemoglobin component. The absence of other abnormal hemoglobins such as S, C, and F negates a possible hemoglobinopathy as causing the hemolytic disease.

Fetal hemoglobin level is usually 1.3 to 2.0 Gm.%. An elevated level is found in sickle cell anemias and thalassemia.

The direct Coombs test is used to detect incomplete antibodies already combined with the antigen of red blood cells. The indirect test is used to detect free antibodies in serum. This may be of value in patients suspected of having received incompatible blood, in Rh-negative expectant mothers (bearing Rh-positive infants), and in persons with ABO incompatibilities.

Gamma globulin normal values are 0.8 to 1.30 Gm./100 ml.

Blood cholesterol levels, by a modification of Bloor's method, show a normal range from 130 to 250 mg.%.

Serum calcium levels range from 9.0 to 11.0 mg./100 ml., by the method of Kramer and Tisdall. While calcium is necessary for the conversion of prothrombin to thrombin, there is no real correlation between hypocalcemia and hemorrhagic tendency.

Normal total (30-minute) serum bilirubin levels range from 0.3 to 1.7 mg.%. Direct-reacting (1-minute) bilirubin levels range from 0.1 to 0.5 mg.%. The level of direct-reacting bilirubin diglucuronide is usually normal in hemolytic disease, in which total bilirubin level may range to 6 mg.%.

Alkaline phosphatase values determined by the method of Bodansky range from 1.5 to 4.0 Bodansky units in adults and from 1.5 to 8.0 units in children.

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ACUTE PANCREATITIS.—When the diagnosis has been made with reasonable certainty, medical management is to be preferred. Surgery should be reserved for complications or the correction of associated biliary tract disease and, if the patient's condition permits, should be delayed well into convalescence. In general, the preferred medical therapy consists of the following procedures: (1) correction of fluid and electrolyte balance and the administration of whole blood, plasma or plasma expanders or albumin to combat shock (particular attention being paid to correction of calcium deficits in addition to the usual electrolytes); (2) relief of pain with [meperidine] or splanchnic block if necessary; (3) an attempt to antagonize the usual stimulation and ability of the pancreas to secrete, by use of gastric suction, anticholinergics and antacids; (4) administration of broad spectrum antibiotics where indicated. In addition to the above plan of general treatment . . . insulin should be given to control hyperglycemia when present. In our own series, the early administration of insulin seemed to exert a protective effect on the severity of subsequent diabetes.—P. L. Shallenberger, M.D., and D. F. Kapp, M.D., Acute Pancreatitis: A Clinical Review of 72 Attacks Occurring in 54 Patients, *Annals of Internal Medicine,* June, 1958.

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MEDICAL CERTIFICATION OF ABSENCE FROM WORK

PROBLEMS often arise between the in-plant medical director and the family physician, especially concerning the reasons for an employee's absence and his ability to return to work. Because of this situation, of particular importance to the private practitioner is the medical certification substantiating illness that many companies require an employee to submit on his return to work. These are usually completed by the employee's personal physician. However, such certificates are not infrequently requested of a physician who has had no previous contact with the worker.

Two situations surround the presentation of these medical "notes" to explain job absence. The first is where the worker has not actually seen a physician during his illness. The second is where the worker was actually under a physician's care during the time he was ill.

In the first instance, the worker comes to the doctor's office and relates his recent medical history and requests certification based on his "self-diagnosis." Rarely does he still show physical evidence of having been sick. How can the physician medically certify to the employer, or to the physician in charge of the in-plant medical program, the absence of this worker who states how sick he has been, especially since the physician did not witness or treat his illness? In this situation should not management or the plant's medical director receive only a statement to the effect that the worker was not seen or treated during his alleged illness? Can a credible diagnosis be made without signs and symptoms, and would the same method of diagnosis be used in the case of a person who does not need certification?

Malingering surely occurs and basically it may be a medical problem. Repeated work absences may well be a manifestation of a condition requiring professional care. The employer should determine whether a worker's absence is habitual, but it is through cooperation between the physician in industry and the private practitioner that the need for medical investigation can be established. The doctor who, only on the basis of a worker's own say-so, concludes a worker was ill, may be doing that worker a great disservice by perpetuating a mental or physical condition requiring medical care.

The second type of situation relating to the medical certificate covering work absence is where the worker was actually under a physician's care during his illness. Here, where there is a diagnosis, how much information should be furnished the employer as to the nature of the employee's illness? This is information that could be considered of a privileged nature. At this point, the physician must give thought as to whether his patient can return to the same duties he performed prior to his illness. If only "light" work is permissible, there must be a mutual interpretation as to the limitations imposed. The physician must also determine whether the illness his patient has suffered was, and might still be, communicable. Additionally, he must determine what effect this illness may have on the attitude of the returning worker toward his fellow employees, as well as their attitude toward him, and how these attitudes may affect the morale, productivity, and safety of the group. To understand the possible long-term effects of such attitudes is as important as returning the employee to his job.

These examples should point up the need for the most effective communication possible between the industrial physician and the physician in private practice. In this issue of THE JOURNAL, page 1131, is a special article demonstrating the private practitioner's involvement in the absence-from-work problem and emphasizing that his is a central role. To be sure, the certification of work absence is only one of the many facets of the problem that will have to be investigated. The type, and perhaps the limitation, of medical certification of job absence certainly needs study by all concerned. But to properly study even this one aspect of the problem, the physician should also have knowledge of the many other pertinent elements that enter into the over-all picture, particularly that of the occupational environment. The study of this problem, and the publication and utilization of its results, promise nothing but improvement of the health of the worker.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

What marks a profession? A profession is defined as a group of individuals who do the same kind of work, who follow definite rules of practice, and who as an organized group uphold and enforce certain moral, ethical, and educational standards in the interests of providing better service to the public.

Since the time of Hippocrates medicine has merited the term "profession." Traditionally, it has had a singular devotion and dedication to the prevention and alleviation of man's physical and mental ills and to the promotion and maintenance of the highest standards.

What must medicine and its members do in this modern, changing age to perform their duties in the best professional manner? I firmly believe that medicine is obligated to provide the best quality of service, traveling that second mile as often as is necessary. It is obligated to assure the public of the competence of its members and the quality of their work. It is obligated to assume the responsibility of disciplining those who do not measure up to the accepted ethical practices of the profession.

If medicine is to fulfill these obligations as a profession, it must remain an organization of individuals. Only physicians, as medical personalities, can establish a close relationship with a patient, can judge the competence of their colleagues, and can prohibit the kinds of conduct harmful to patients and the profession.

An impersonal group, outside of medicine, cannot establish and maintain the high moral rules of the medical profession. It cannot have the conscience of the individual professional man, and it cannot acquire the human understanding needed to maintain the best quality of medical service. It cannot command the confidence of the public.

Of course, a physician may momentarily lose his sense of moral duty to the individual patient. When he does, however, our moral standards suffer and society's confidence in the medical profession is shaken. This gives outside forces an opportunity to promote themselves at the expense of the entire profession.

When patients become skeptical or have reservations about physicians, they are likely to loosen their grip on their traditional right to select the physician they want. If others then assume this right of the patient to choose, the results could be disastrous for medicine as a profession.

For centuries free choice to the profession and to the individual physician has meant the challenge of the open market, the incentive of competitive selection, the chance to succeed or fail based on the judgments of many individual consumers, and the opportunity to develop a relationship with the patient undisturbed by outside forces of uncertain motivation. These have been the rewards of professionalism, justly due where justly deserved.

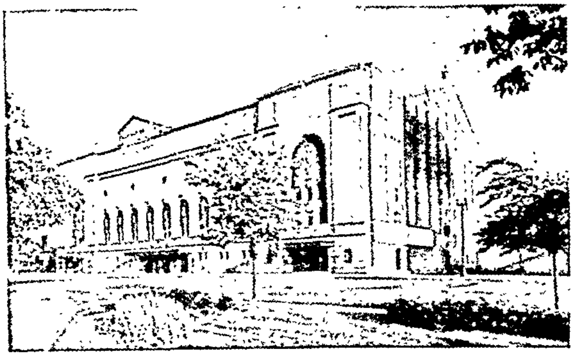
Consequently, each physician must adhere to the best medical practices and the highest moral standards for the protection of himself, his colleagues, and his profession and for the continuing good service to the patient. In this way he will fortify the natural inclination of the patient to preserve his right to choose.

In his book, "The Ethical Basis of Medical Practice," Willard L. Sperry, dean of the Harvard Divinity School, says that "the ethics of accepted medical usage represents both in theory and in general practice the highest professional standard now recognized in our country . . . if the doctors fail us, morally, the whole level of our professional morals will suffer accordingly. We look to them for leadership." Let us not fail this trust.

Gunnar Gundersen, M.D.
La Crosse, Wis.

WELCOME TO BEAUTIFUL MINNEAPOLIS

The more than a half-million people in Minneapolis have joined hands with mother nature to make that city one of the most beautiful in the United States. The natural beauty of Minneapolis is breathtaking. The mighty Mississippi flows there over the historic St. Anthony Falls and through gorges worn deep through centuries of time. Within the city limits are 22 lakes and lakelets providing ideal facilities for boating, bathing, and fishing. The Minneapolis park system is one of the best, with its 152 parks covering nearly 6,000 acres. There is one acre of park for every 98 people in the city. Minnehaha Park, home of the famous falls which Longfellow commemorated in his poem, "The Song of Hiawatha," covers 144 acres of wooded hills and its Parkway winds along the creek, linking Lake Nokomis, Lake Hiawatha, Lake Calhoun, Lake Harriet, Lake of the Isles, and Cedar Lake.



Minneapolis Municipal Auditorium

In this beautiful setting, doctors from throughout the United States will convene Dec. 2-5 to attend the Annual Clinical Meeting of the American Medical Association. In the Municipal Auditorium, shown on this page, they will attend lectures by widely known medical speakers, study hundreds of scientific and commercial exhibits, attend Section meetings, and view an especially selected program of medical films.

Minneapolis is not only one of America's most scenic metropolitan centers; it is also a great industrial center. The flour mills of Minneapolis have been known throughout the world for more than 70 years. A flour mill was one of the first structures to be erected on the banks of the Mississippi in a settlement that later became the city of Minneapolis. The manufacture of linseed products is a leading industry. Huge crushing plants turn out linseed oil by the carload and that helps the paint business there to turn out 6 million gallons of paint a year.

The very impressive business district of Minneapolis is conveniently laid out. Hennepin Avenue, named after the discoverer of St. Anthony Falls, has been called the "Broadway of Minneapolis," and Nicollet Avenue, named after another distinguished pioneer, is justly referred to as the "Fifth Avenue of the upper midwest," where many fine shops and stores offer a fine selection of gifts and other merchandise.

Agricultural machinery, air conditioning equipment, motors, generators, transformers, hearing aids, thermostats, and heat and humidity controls are produced in large quantities. Minneapolis is one of the largest printing and publishing centers in the United States, and, as an apparel manufacturing center, it has often been called the lingerie center of the world.

To serve these thriving industries, the city of lakes has a vast network of railroads, airlines, trucklines, and buslines and a regular barge service down the river to New Orleans during the navigation season.

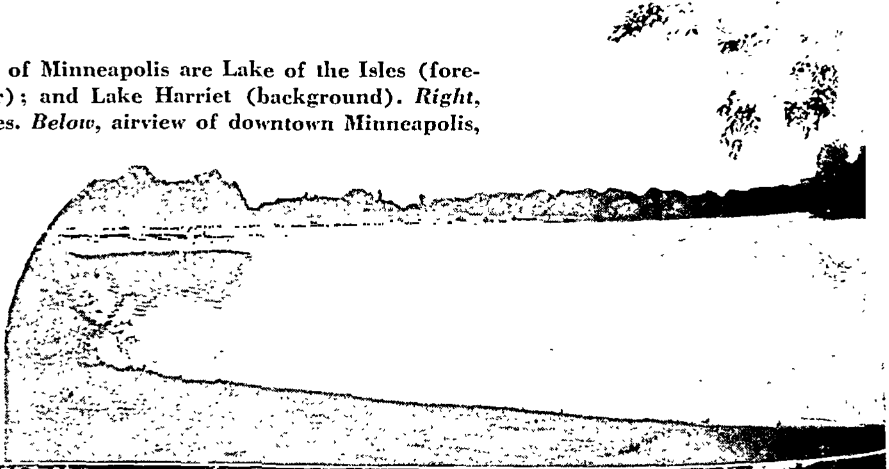
Unparalleled cultural advantages are afforded by the University of Minnesota, which is among the leading educational institutions of the world, in size, standing, and prestige. The renowned Minneapolis Symphony Orchestra, founded in 1903 and now one of the 5 leading orchestras in the world, is at home on the campus of the University of Minnesota, in the beautiful Northrop Memorial Auditorium.

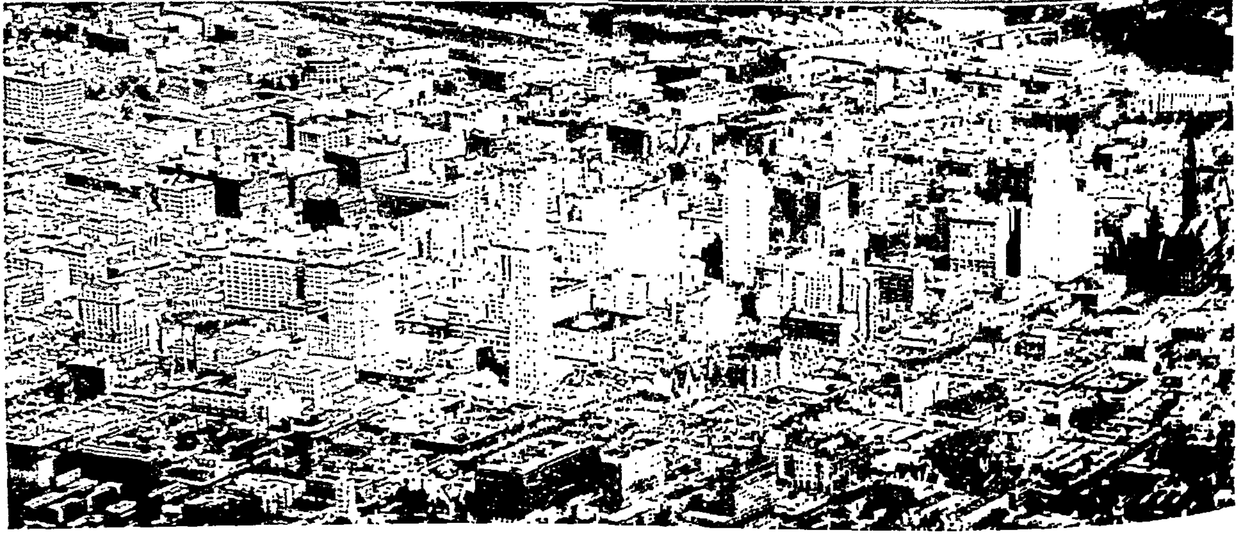
Visitors may enjoy other cultural facilities such as the Walker Art Center, the Minneapolis Institute of Art, the Swedish-American Museum, and the University of Minnesota Gallery.

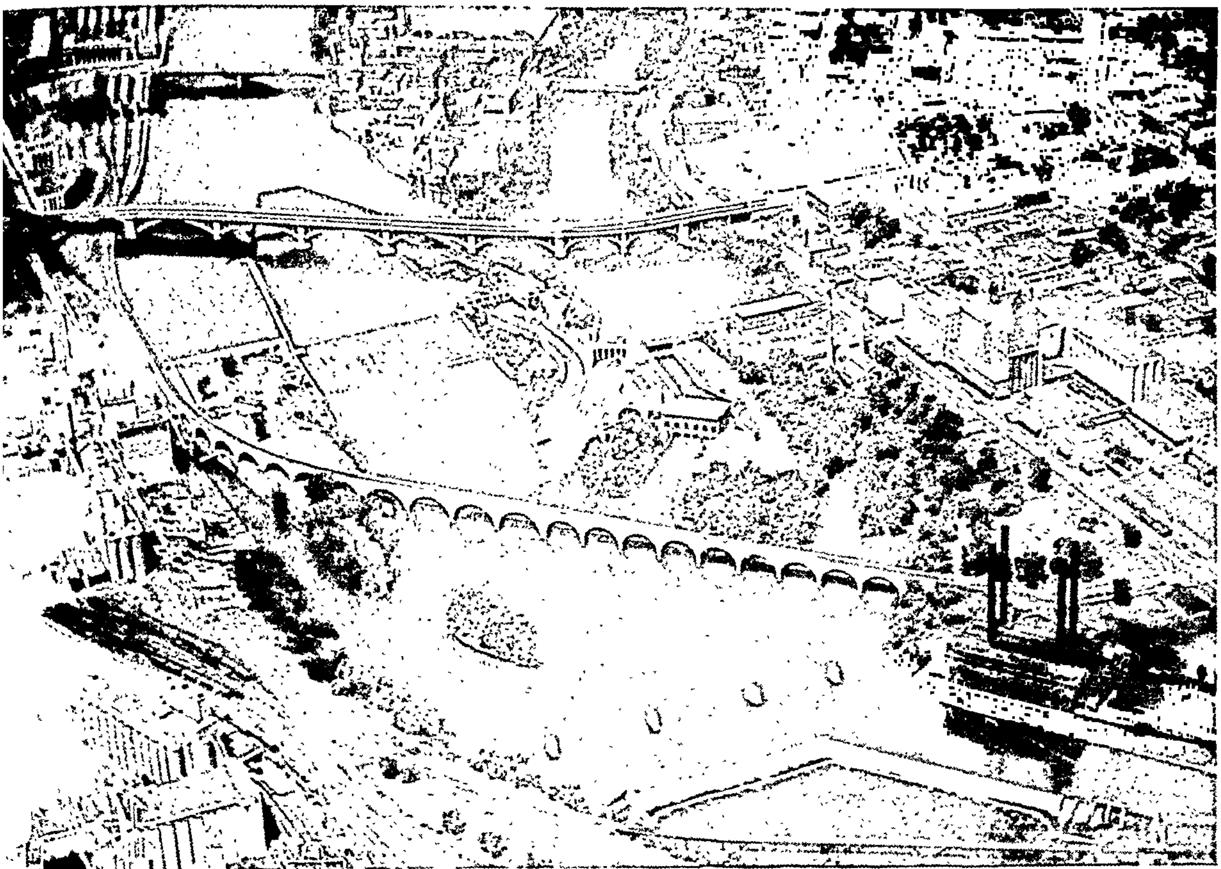
Minneapolis is a mecca for tourists and convention delegates, some 300 conventions being held there each year; and it is the gateway to the northern resort country. Minnesota has nearly 2,500 resorts where tourists can go for recreation. Information concerning the numerous points of interest and the many resorts nearby in the state of Minnesota may be obtained from the Minneapolis Area Chamber of Commerce, 701 Second Avenue South, telephone Fe 9-8521.

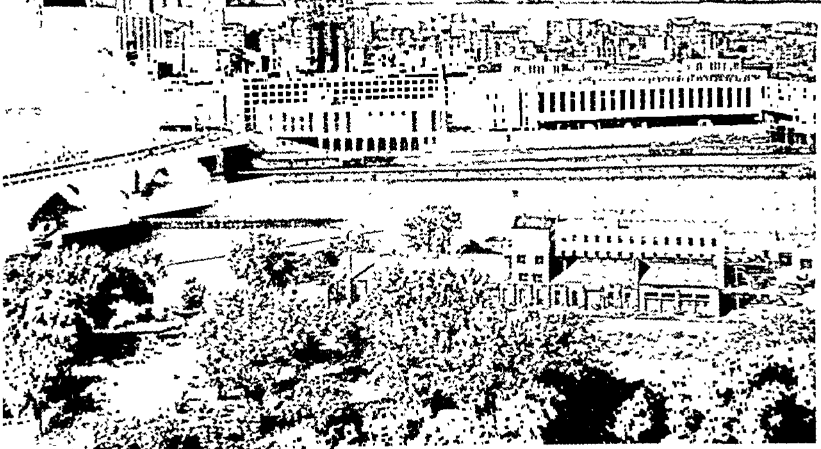
MINNEAPOLIS—CITY OF LAKE

Above, in the residential district of Minneapolis are Lake of the Isles (foreground); Lake Calhoun (center); and Lake Harriet (background). *Right*, another view of Lake of the Isles. *Below*, airview of downtown Minneapolis, with Mississippi River in background and Minneapolis Auditorium in foreground. Fosahy Tower (center) is designed after the Washington Monument, Washington, D. C.





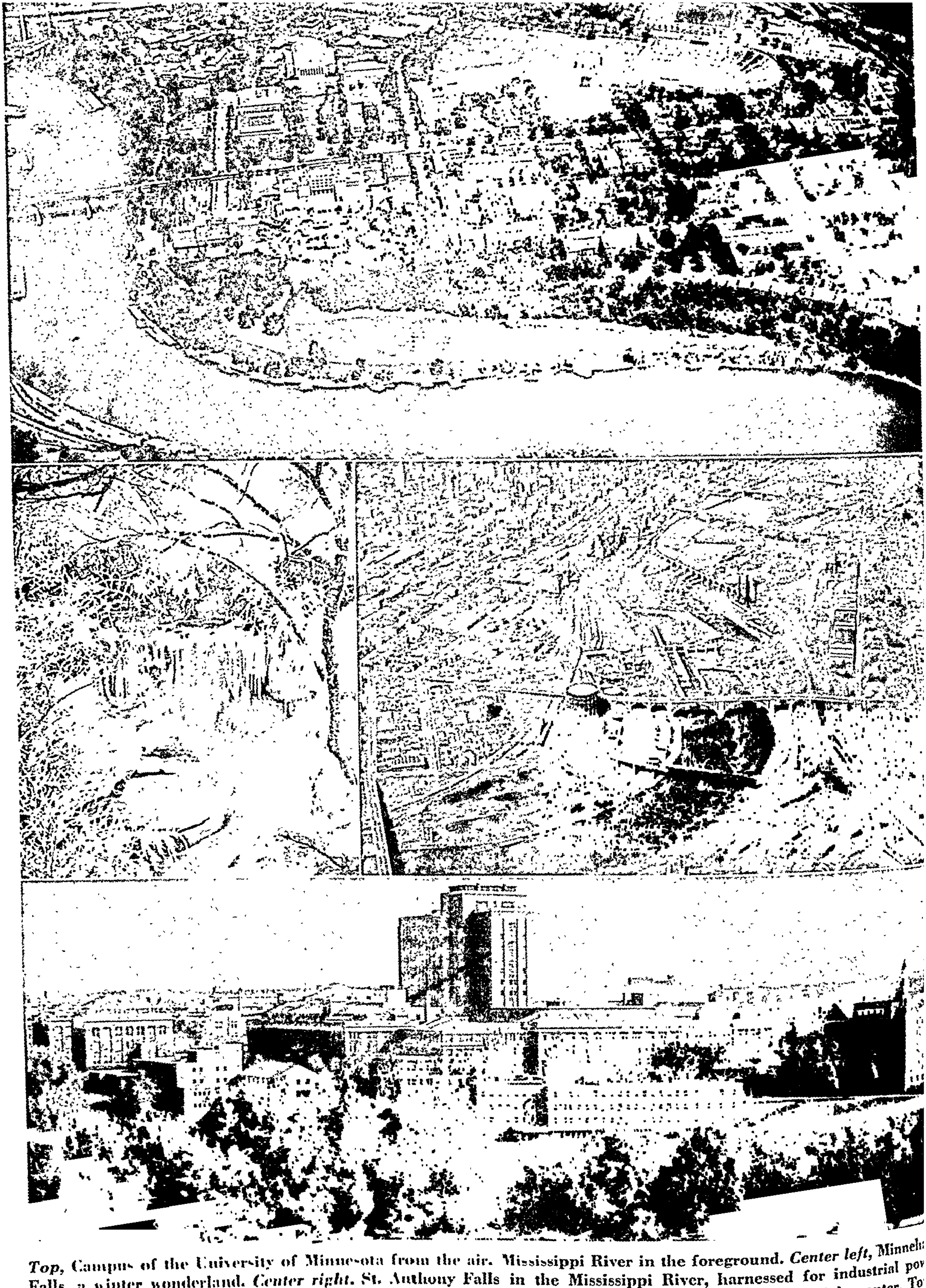




Above, showing grain elevators and mills on both sides of the Mississippi River at St. Anthony Falls.

Left, Minneapolis skyline seen from the east bank of the Mississippi River. Nicollet Island is in the foreground. Prominent building on the right, across river, is the post office.

Right, Minneapolis' beautiful Lake Harriet.



Top, Campus of the University of Minnesota from the air. Mississippi River in the foreground. *Center left,* Minneh
Falls, a winter wonderland. *Center right.* St. Anthony Falls in the Mississippi River, harnessed for industrial po
Bottom. University of Minnesota Medical Center. Variety Club Heart Hospital is low building at right center. To
building is a memorial to Drs. William J. and Charles H. Mayo.

THE CLINICAL MEETING

AMERICAN MEDICAL ASSOCIATION

Minneapolis, Dec. 2-5, 1958

OFFICIAL CALL

To the Officers and Members of the
American Medical Association

The Clinical Meeting of the American Medical Association will be held in Minneapolis, Dec. 2-5, 1958.

House of Delegates: The House of Delegates will convene at 9 a. m. Tuesday, Dec. 2, in the Illinois, Minnesota, and Wisconsin Rooms of the Leamington Hotel. In the House the representation of the various constituent associations for the 1958 Clinical Meeting is as follows:

Alabama	2	Montana	1
Alaska	1	Nebraska	2
Arizona	1	Nevada	1
Arkansas	2	New Hampshire	1
California	16	New Jersey	6
Colorado	2	New Mexico	1
Connecticut	3	New York	17
Delaware	1	North Carolina	3
District of Columbia	2	North Dakota	1
Florida	3	Ohio	8
Georgia	3	Oklahoma	2
Hawaii	1	Oregon	2
Idaho	1	Pennsylvania	11
Illinois	10	Puerto Rico	1
Indiana	4	Rhode Island	1
Iowa	3	South Carolina	2
Isthmian Canal Zone	1	South Dakota	1
Kansas	2	Tennessee	3
Kentucky	2	Texas	7
Louisiana	2	Utah	1
Maine	1	Vermont	1
Maryland	2	Virginia	3
Massachusetts	6	Washington	3
Michigan	6	West Virginia	2
Minnesota	4	Wisconsin	4
Mississippi	2	Wyoming	1
Missouri	4		

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy, the Medical Corps of the Air Force, the Public Health Service, and the Veterans Administration are entitled to one delegate each.

Meetings and Exhibits: The scientific meetings and the scientific and industry exhibits will be held in the Municipal Auditorium.

The Opening General Assembly will begin at 9:30 a. m., Tuesday, Dec. 2, in the Municipal Auditorium.

The Scientific Program will open Tuesday, Dec. 2, at 10:30 a. m., and will continue throughout the afternoon of that day. The program will continue on Wednesday and Thursday, Dec. 3 and 4, and on Friday morning, Dec. 5, closing at 12 noon.

Registration: The Registration Bureau, which will be located in the Municipal Auditorium, will be open as follows:

Tuesday, Dec. 2–8 a. m. - 5:30 p. m.
Wednesday, Dec. 3–8:30 a. m. - 5:30 p. m.
Thursday, Dec. 4–8:30 a. m. - 5:30 p. m.
Friday, Dec. 5–8:30 a. m. - 12 noon

Gunnar Gundersen, President.
E. Vincent Askey, Speaker, House of Delegates.
R. M. McKeown, Secretary-Treasurer.

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A Roster of the Legislative Body of the American Medical Association

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The Speaker of the House of Delegates, Dr. E. Vincent Askey, *California*, has appointed the following delegates to serve on the reference committees of the House at the Minneapolis meeting:

Amendments to the Constitution and Bylaws

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George A. Earl, Minnesota

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The Executive Vice-President, Assistant Executive Vice-President, and Editor are ex officio *members of all Standing Committees.*

HOUSE OF DELEGATES

The House of Delegates will convene at 9 a. m. Tuesday, Dec. 2, 1958, in the Illinois, Minnesota, and Wisconsin Rooms at the Leamington Hotel.

The Reference Committee on Credentials will meet near the entrance to the Illinois, Minnesota, and Wisconsin Rooms at 8 a. m. Tuesday, Dec. 2. Credentials should be presented to the Reference Committee on Credentials as early as possible, so that the official roll of the House may be prepared and the House of Delegates may organize promptly and proceed with its business. The Reference Committee will also meet preceding each subsequent meeting of the House of Delegates.

Each delegate should present properly executed credentials signed by the president or secretary of the constituent association, by the chairman or secretary of the section, or by the surgeon general or chief medical director of the government service he represents. Alternates presenting credentials should see that the delegates whose places they are to take have signed the alternate authorization.

Each delegate, *before* registering with the Reference Committee on Credentials, should register for the Scientific Assembly at a desk near the entrance to the Illinois, Minnesota, and Wisconsin Rooms.

Meeting rooms have been provided for the use of Reference Committees of the House of Delegates. Reference Committee meetings must be held at the time and in the room assigned so that any who are interested in referred matters may appear before the committees.

Typists will be available in the Secretary's Office (Dakota Room) for preparing official reports, resolutions, and motions.

REGISTRATION

The Registration Bureau, which will be located in the Municipal Auditorium on East Grant between Stevens Avenue and Third Avenue, will be open as follows:

Tuesday, Dec. 2–8 a. m.–5:30 p. m.
Wednesday, Dec. 3–8:30 a. m.–5:30 p. m.
Thursday, Dec. 4–8:30 a. m.–5:30 p. m.
Friday, Dec. 5–8:30 a. m.–12 noon

An information window will be operated in connection with the Registration Bureau.

Who May Register

Members—Active, Affiliate, Associate, Service and Honorary—and invited guests may register for attendance at meetings.

Residents, interns, senior medical students, Student A. M. A. members, and registered nurses will be given registration cards at a designated window. These should be filled in and presented at the window indicated, together with their professional identification or a card or letter signed by the superintendent of the hospital where they are registered or the dean of the medical school they attend.

Register Early

The Registration Bureau will be open at 8:00 a. m. on Tuesday, Dec. 2. Members are urged to take advantage of this early opening.

The names and convention or local addresses of those who register will be included in the *Daily Bulletin*. This will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Members who have Advance Registration Cards can be processed with little or no delay, if the name of your convention hotel or local address and the number of guests you wish to admit are filled in prior to registering.

Present completed card at windows marked "Advance Registration" and you will receive a badge and a copy of the Official Program.

If you do not have an Advance Registration Card and wish us to send one to you, just fill out the form on advertising page 45 and return it before Nov. 7, 1958, to the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

Members without Advance Registration Cards will find blank cards to fill in on tables near the registration windows. The filled-in card should be presented, together with your American Medical Association Membership pocket card, at the window indicated. Your pocket card will be returned to you and you will receive a badge and a copy of the Official Program.

Registration at Leamington Hotel

General Officers of the American Medical Association, members of the House of Delegates, alternate delegates, and the president, president-elect, and constitutional secretary of the constituent medical societies may register at the Leamington Hotel. Advance registration facilities will be set up on Sunday and Monday in the Secretary's Office in the Dakota Room at the Leamington Hotel; Tuesday, Dec. 2, beginning at 8 a. m. registration will be held near the entrance to the Illinois, Minnesota, and Wisconsin Rooms.

Delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House, which will convene at 9 a. m., Tuesday, Dec. 2.

Medical Society Executives Registration

Staff members of state, territorial, and county medical societies, editors of state medical journals and county medical society bulletins, and staff members of national organizations of medical interest may register beginning on Sunday, Nov. 30, in the Secretary's Office in the Dakota Room at the Leamington Hotel.

MEETING PLACES

House of Delegates: Illinois, Minnesota, and Wisconsin Rooms of the Leamington Hotel, Third Avenue, Tenth and Eleventh Streets.

General Scientific Meetings: Municipal Auditorium, East Grant between Stevens Avenue and Third Avenue.

Motion Pictures: Municipal Auditorium.

Color Television: Municipal Auditorium.

General Headquarters, Registration Bureau, Scientific Exhibit, Industry Exhibit and Information Bureau: Municipal Auditorium.

MINNEAPOLIS HOTEL RESERVATIONS

If hotel accommodations have not yet been secured, it is suggested that the application form which may be found on advertising page 108 of this issue of The Journal be filled in and sent directly to the A. M. A. Clinical Meeting Housing Bureau, 6th floor, Lutheran Brotherhood Bldg., Minneapolis 2, Minn. Applications for hotel accommodations should *not* be sent to the American Medical Association office in Chicago as it delays receipt of the application by the A. M. A. Housing Bureau and its subsequent processing.

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William H. A. Watson
Hendrik De Kruif
John G. Lohmann
James A. Blake
Paul Wilken
H. L. Huffington

B. A. Flesche
Charles Beck
William Skaife
Burton Ford
Donald H. Kast
Herbert D. Kuper
David N. Goldstein
James Cosgriff, Jr.
Herbert Hoff
C. E. Carlson
H. Wayne Johnson
Robert L. Knipfer
Theodore J. Nereim
C. A. Johnson

Medical History Committee

Thomas A. Peppard, *Chairman*

O. L. Norman Nelson
Henry L. Ulrich
Tague C. Chisholm
Olga S. Hansen
Arthur Bishop Hunt
Elexious T. Bell
Robert Rosenthal
Herman Kleinman
Arthur H. Bulbulian
Mrs. Thomas A. Peppard
Mrs. Charles H. McKenzie
Mrs. Hamlin Mattson
Mrs. Reuben F. Erickson
Mrs. Horatio B. Sweetser
Mrs. Reuben Berman
Mrs. Robert B. Potter
Mrs. E. A. Regnier
Mrs. Thomas D. Wright

WOMAN'S AUXILIARY

A cordial invitation is extended to the wives of physicians attending the A. M. A. Clinical Session in Minneapolis to participate in the program planned by the Woman's Auxiliary to the Minnesota State Medical Association.

The information booth will be in the Minneapolis Auditorium (main floor) and will be staffed by members of the Woman's Auxiliary to the Hennepin County Medical Society. The following program has been planned and all visiting ladies are cordially invited:

Tuesday, December 2

Afternoon: Tea at the American Swedish Art Institute. Transportation furnished by the Woman's Auxiliary to the Ramsey County Medical Society. Cars will leave from Hotel Leamington.

Evening: Program by "Doc" Evans and his Dixieland Band—an interesting history of Jazz demonstrated by music.

Wednesday, December 3

Morning: Tour of Southdale Shopping Center.
Luncheon at a nominal charge.

Afternoon: Tour of Betty Crocker Kitchens and General Mills new building.
Transportation will be furnished for the above. Cars will leave from Hotel Leamington.

Evening: House of Delegates Dinner.

Thursday, December 4

Morning: *Tours to be announced.*
Evening: *Concert by the Apollo Club.*
Complete details available at the information desk.

LOCAL COMMITTEES

General Chairman

Mrs. Reuben F. Erickson

General Arrangements

Mrs. Karl W. Anderson, Chairman
Mrs. Hamlin Mattson
Mrs. Rodney Sturley

Hospitality

Mrs. C. L. Oppegaard, Chairman
Mrs. M. F. Fellows
Mrs. L. P. Howell
Mrs. H. H. Fesler
Mrs. H. B. Sweetser

Entertainment

Mrs. Richard Lindquist
Mrs. L. R. Boies
Mrs. O. L. Norman Nelson
Mrs. Ragnar T. Soderlind
Mrs. Earl Henrikson
Mrs. Henry W. Quist

Transportation

Mrs. Herman J. Wolff
Mrs. W. P. Gardner

Press

Mrs. Charles E. Merkert

THE SCIENTIFIC PROGRAM

MINNEAPOLIS AUDITORIUM

The Scientific Program for the Minneapolis Clinical Meeting is of exceptionally high caliber and should be of interest to general practitioner and specialist alike.

Minneapolis Auditorium will be the scene of lectures, panels, symposiums, motion pictures, color television, and the Scientific Exhibit. Color television will originate at the Mayo Memorial Building, University of Minnesota Hospital, and will be carried by closed circuit to the Auditorium.

A Trans-Atlantic Conference with the British Medical Association, which will hold its first Clinical Meeting in Southampton, England, at the same time as the Clinical Meeting of the American Medical Association, will be held in the Minneapolis Auditorium at 10 a. m. Friday, Dec. 5 (4 p. m. in Southampton).

Scientific activities outside the Auditorium include 10 round table breakfasts on Thursday morning at the Leamington Hotel, which will be limited to 30 persons each, and to which admission will be by ticket only. Speakers and topics will be announced in a later edition of The Journal. On Wednesday evening an outstanding motion picture program will be presented at the Leamington Hotel, in the Michigan Room.

The Council on Scientific Assembly extends its appreciation to the Local Committee on Arrangements in Minneapolis for its painstaking initiative in preparing the program. Dr. O. L. Norman Nelson, General Chairman of Arrangements; Dr. N. L. Gault Jr., Chairman, Committee on Scientific Program; Dr. James R. Fox, Television Chairman, and Dr. Arnold J. Kremen, Scientific Exhibit Chairman, have all been exceedingly active during the last year. Others deserving mention include Dr. Thomas A. Peppard, in charge of the Special Exhibit on the History of Medicine in Minnesota; Dr. Mancel T. Mitchell, in charge of the Manikin Demonstrations on Problems of Delivery, Mr. Thomas P. Cook, and Mr. R. R. Rosell, Executive Assistants.

Appreciation is also extended to Smith, Kline & French Laboratories, Philadelphia, for its part in the presentation of the color television program and the Trans-Atlantic conference.

The program begins Tuesday morning, Dec. 2, and continues until Friday noon, Dec. 5.

OPENING GENERAL ASSEMBLY: ROOM 2

Tuesday morning, Dec. 2

Presiding: O. L. Norman Nelson, Minneapolis,
General Chairman

9:30 Speakers:
Horatio B. Sweetser, Minneapolis, President, Minnesota State Medical Association.
R. S. Ylvisaker, Minneapolis, President, Hennepin County Medical Society.
Robert N. Barr, Minneapolis, Secretary, Minnesota State Board of Health.
N. L. Gault Jr., Minneapolis, Chairman, Local Committee on Scientific Program.
Charles W. Mayo, Rochester, Minn., The Mayo Clinic.
Gunnar Gundersen, La Crosse, Wis., President, American Medical Association.

Meningitis Due to ECHO Viruses.
Tom D. Y. Chin and Michael L. Furcolow, Kansas City, Kan.

11:00 The Emergency Treatment of Massive Upper Gastrointestinal Hemorrhage by Local Gastric Hypothermia.
O. H. Wangensteen, H. D. Root, P. A. Salmon, and W. O. Griffen Jr., Minneapolis.

11:30 The Physical Treatment of Peripheral Nerve Injuries.
Robert W. Boyle, Milwaukee.

LECTURES: ROOM 2

Tuesday afternoon, Dec. 2

1:30 Tinnitus, Vertigo, and Deafness.
L. R. Boies, Minneapolis.

2:00 Head and Neck Tumors.
Danely P. Slaughter, Chicago.

2:30 How to Examine and Manage the Acute Back.
Edward H. Juers, Red Wing, Minn.

3:00 Tendon Repair of the Hand.
Robert E. Van Demark, Sioux Falls, S. D.

3:30 Prescription of Activities for Cardiac Convalescents.
Edward E. Gordon, Chicago.

4:00 Asian Influenza and Its Complications.
Wendell Hall, Minneapolis.

4:30 Treatment of Cardiac Arrhythmias.
George A. Hellmuth, Milwaukee.

Wednesday morning, Dec. 3

9:00 Fractures in Children.
Donald S. Miller, Chicago.

9:30 When to Do What in Children's Surgery.
H. Wm. Clatworthy Jr., Columbus, Ohio.

10:00 The Diagnosis and Treatment of Rectal Neoplasms.
Lloyd F. Sherman, Minneapolis.

10:30 Catastrophic Drug Reactions.
Louis E. Prickman, Rochester, Minn.

11:00 Nosocomial Infections in Surgical Patients.
Carl W. Walter, Boston.

11:30 Toxemias of Pregnancy and Their Management.
Alex Barno, Minneapolis.

Wednesday afternoon, Dec. 3

1:30 No. 1 Killer of Children—Accidents.
George M. Wheatley, New York.

2:00 Acute Burns in Children.
Truman G. Blocker Jr., Galveston, Texas.

2:30 Vomiting and Diarrhea in the Child.
Charles U. Lowe, Buffalo.

3:00 Constipation and Obstipation in the Child.
Alexander H. Bill Jr., Seattle.

3:30 Practical Aspects of Management of Urinary Tract Infections.
E. N. Cook, Rochester, Minn.

4:00 Premature Infant Feeding.
Hans G. Keitel, Philadelphia.

4:30 Ocular Injuries.
Dan M. Gordon, New York.

Thursday morning, Dec. 4

9:00 Obstetrical Anesthesia and Analgesia.
Virginia B. Hartridge, Rochester, Minn.

9:30 Abnormal Uterine Bleeding.
Roy Holly, Omaha.

10:00 Postsurgical Fluid Balance.
Philip Thorek, Chicago.

10:30 Some Newer Concepts in the Treatment of Allergy.
J. S. Blumenthal, Minneapolis.

11:00 Significance of Routine Urinalysis.
George E. Schreiner, Washington, D. C.

11:30 Prostatism in the Young and Aged.
James W. Sargent, Milwaukee.

Thursday afternoon, Dec. 4

1:30 Newer Phenothiazine Drugs in Nervous Disorders.
V. John Kinross-Wright, Houston, Texas.

2:00 Use and Abuse of Blood Transfusions.
Virgil Loeb Jr., St. Louis.

2:30 Chronic Relapsing Pancreatitis.
James J. Priestley, Rochester, Minn.

3:00 Strictured Common Bile Duct.
Stanley R. Friesen, Kansas City, Kan.

3:30 Office Use of the Ophthalmoscope.
John P. Wendland, Minneapolis.

4:00 Convulsive Disorders.
Edward C. Clark, Rochester, Minn.

4:30 The Diarrhea of Travelers to Mexico.
B. H. Kean, New York.

Friday morning, Dec. 5

9:00 Carotid Artery Thrombosis.
Clark H. Millikan, Rochester, Minn.

9:30 Recent Advances in the Treatment of Acute Renal Failure.
Francis D. Murphy and Earl G. Schulz, Milwaukee.

10:00 Treatment of Pulmonary Emphysema.
George N. Bedell, Iowa City.

10:30 Practical Aspects of Treatment of Congestive Heart Failure.
C. Thorpe Ray, Columbia, Mo.

11:00 Farmer's Lung (Silo-Filler's Disease)
Thomas Lowry, Minneapolis.

11:30 Current Management of Gouty Arthritis.
John H. Talbott, Buffalo.

Medical Management.
James B. Carey Jr., Minneapolis.
Surgical Management.
Monford D. Custer, Winchester, Va.

10:30-12:00
Symposium on Hypertension—Medical and Surgical
Does Hypertension Need Treatment?
Louis J. Tobian Jr., Minneapolis.
Optimal Medical Management.
Harriet P. Dustan, Cleveland.
Is There a Place for Surgery in the Treatment of Hypertension?
Jesse E. Thompson, Dallas, Texas.

MOTION PICTURES: ROOM 4

Tuesday afternoon, Dec. 2—1:30

Premedication in Pediatric Surgery: A Program for Sedation and Quiescence.
Max S. Sadove, Chicago.

Aneurysms of Abdominal Aorta: Surgical Considerations Based Upon Analysis of 500 Resected Cases.
Michael E. De Bakey, Denton A. Cooley, and E. Stanley Crawford, Houston, Texas.

Cholecystectomy and Operative Cholangiography.
Joel W. Baker and John H. Walker, Seattle.

Edema and Mercurial Diuresis.
Arthur C. De Graff, Herbert S. Kupperman, Robert A. Lehman, and Alfred Vogl, New York.

The Hepato Jugular Reflux.
J. Marion Bryant, New York.

A Clinic on Recognition and Management of Respiratory Acidosis.
Reginald H. Smart, Hurley L. Motley, and Joseph F. Boyle, Los Angeles.

Grand Rounds: Current Therapy of Diabetes.
William B. Bean, Iowa City; Henry Dolger, New York; Rachmiel Levine, Chicago; Alexander Marble and Hugh L. C. Wilkerson, Boston.

The Care and Treatment of Diabetic Feet.
W. E. Redfern, W. L. Lowrie, M. A. Block, and B. E. Brush, Detroit.

MOTION PICTURES: ROOM 4

Wednesday afternoon, Dec. 3—1:30

Control of Severe Pain.
Wilbur Benson, Nutley, N. J.

Safe and Conservative Treatment of Lesions of the Female Breast.
W. Emory Burnett, Philadelphia.

Complete Office Gynecological Examination.
F. J. Hofmeister, Milwaukee.

Low Cervical Cesarean Section.
Robert B. Wilson, Rochester, Minn.

Breech Delivery.
Bruce Mayes, Sydney, Australia.

Kielland's Midwifery Forceps.
Alistair Gunn, London, England.

Cystectomy for Ovarian Dermoids—Technique of Victor Bonney.
Phil C. Schreier and Albert M. Alexander, Memphis, Tenn.

Dynamics of Phagocytosis—The Interaction Between Group A Streptococci and Human Neutrophils In Vitro.
Armine T. Wilson, Wilmington, Del.

Someone is Watching (Careless Handling of Narcotics).
New York State Department of Health, Albany, N. Y.

The Newborn Infant.
Eugene L. Slotkowski, Chicago.

MOTION PICTURES: ROOM 4

Thursday afternoon, Dec. 4—1:30

The Man Who Didn't Walk.
American Medical Association and American Bar Association.

Respiratory Resuscitation Techniques.
Peter Safar, Baltimore.

Some Common Foot Problems Amenable to Surgery.
Robert J. Joplin, Brookline, Mass.

Machine Mimics Man (Artificial Kidney).
Willem J. Kolff, Cleveland, and George E. Schreiner, Washington, D. C.

Emergency Surgery for the Acutely Injured.
James D. Hardy, Jackson, Miss.

Early Management of the Severely Burned Patient.
Edwin H. Ellison and Roger D. Williams, Columbus, Ohio.

SPECIAL FILM SHOWING LEAMINGTON HOTEL, MICHIGAN ROOM

Wednesday evening, Dec. 3

8:00 An Agricultural Portrait.
A film dedicated to Minnesota's pioneers and their descendants. Presented by the Minnesota Statehood Centennial Commission.

8:30 *Film Symposium on Proctology for the General Practitioner.*
Raymond J. Jackman, Mayo Clinic, Rochester, Minn., Moderator.
Technique of Proctoscopy.
Raymond J. Jackman, Rochester, Minn.
Anorectal and Sigmoidoscopic Examination.
Malcolm R. Hill, Los Angeles.
Hemorrhoids and the Early Detection of Rectal Cancer.
Lawrence Abel, London, England.

COLOR TELEVISION: ROOM 1

Tuesday morning, Dec. 2

10:00-12:00
Cardiac By-pass.
C. Walton Lillehei, Minneapolis, Chairman.
Participants: Herbert E. Warden, Minneapolis, and others.

An explanation of the procedure together with indications for its use. The manner in which the machine functions will be demonstrated.

Tuesday afternoon, Dec. 2

1:30-2:45
Neurology.
A. B. Baker, Minneapolis, Chairman.
Participants: Anthony M. Iannone, Minneapolis, and others.

Demonstration of the basic neurological examination which can be carried out in the physician's office, together with the indication and demonstration of special studies in the differential diagnosis of hemiplegia, incoordination, vertigo, involuntary movements, and seizures. The demonstrations will include the use and the misuse of the electroencephalogram, and angiogram.

2:45-4:00
Orthopedic Problems of the Lower Extremities.
Harry B. Hall, Minneapolis, Chairman.

A demonstration of the common orthopedic problems of the foot and lower extremities, particularly of children and young adults. In addition, the practical office treatment will be demonstrated.

Wednesday, Dec. 3

9:30-12:00
Rheumatic Fever—Medical Aspects.
Robert Good, Minneapolis, Chairman.

1:30-4:00
Rheumatic Fever—Surgical Aspects.
Richard L. Varco, Minneapolis, Chairman.

This is essentially a postgraduate course directed toward the general practitioner. It will be presented in a concise, informative, and visual manner for active use in the general practice of medicine. The demonstrations will include the actual heart sounds and murmurs, cardiac catheterization, laboratory procedures, and the usual electrocardiograms, and x-rays.

Thursday morning, Dec. 4

9:30-10:30
Cesarean Section.
John L. McKelvey, Minneapolis, Chairman.
Participants: Irwin H. Kaiser, Minneapolis, and others.

10:30-12:00
Arthritis.
Paul Bilka, Minneapolis, Chairman.

Thursday afternoon, Dec. 4

1:30-2:45
Evaluation of Limb and Back Disability—A Practical Demonstration of the Office Evaluation..
Carl O. Rice, Minneapolis, Chairman.
Medicolegal Problems.
Brent McLeod, Minneapolis.
Disability in the Fingers and Hand.
J. H. Strickler, Minneapolis.
Disability in the Arm.
Albert Hays, Minneapolis.
Disability in the Leg.
Lester Carlander, Minneapolis.
Disability in the Back.
Quenton W. Mack, Boise, Idaho.

2:45-4:00
Emergency Procedures Commonly Encountered in the Care of Children.
Tague Chisholm, Minneapolis, Chairman.

Determination of the fluids indicated and the manner of administration, spinal taps, and the like.

Friday morning, Dec. 5

11:00-12:00
Medical Frontiers.
W. Albert Sullivan Jr., Minneapolis, Chairman.

There will be 5-min. capsule vignettes with demonstrations of current research. These will present the potentials of application to the practice of medicine.

TRANS-ATLANTIC MEDICAL CONFERENCE: ROOM 1

Friday, Dec. 5

American Medical Association Clinical Meeting, Minneapolis,
British Medical Association Clinical Meeting,
Southampton, England.

Presented in cooperation with Smith, Kline & French Laboratories, Philadelphia

10:00-11:00 a. m. (Central Standard Time)
4:00-5:00 p. m. (Greenwich Time)

Clinical Pathological Conference on Chest Diseases

Arrangements have been made by James Rogers Fox, Minneapolis, Chairman of the American Committee, and Walter Hedgcock, Assistant Secretary of the British Medical Association, for a Trans-Atlantic clinical pathological conference on chest diseases.

There will be a moderator and two clinicians for each group. During the first half hour, the British Medical Association will present cases with discussion by a two-way radio connection. The second half hour will be used by the American Medical Association for the presentation of cases, followed by a discussion between both groups.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located on the lower level of Minneapolis Auditorium, with access from the Industry Exhibits by stairs and ramps.

In addition to 98 individual scientific exhibits, the Council on Scientific Assembly has arranged several special features, including the Special Exhibit on Fractures, Special Exhibit on History of Medicine, and Manikin Demonstrations on Problems of Delivery.

PROBLEMS OF DELIVERY—MANIKIN DEMONSTRATIONS

Space 109

Manikin demonstrations on problems of delivery will be conducted at stated intervals throughout the week. An opportunity for questions and answers will be given following each demonstration.

Mancel T. Mitchell, Minneapolis, is in charge of the demonstrations. The following schedule will be presented:

Tuesday afternoon, Dec. 2

12:30 Forceps Deliveries.
Maxwell M. Barr, Minneapolis.
4:30 Breech Deliveries.
Charles H. McKenzie, Minneapolis.

Wednesday morning, Dec. 3

10:00 Breech Deliveries.
Richard R. Fliehr, Minneapolis.

Wednesday afternoon, Dec. 3

12:30 Forceps Deliveries.
Oliver H. Peterson Jr., Bismarck, N. D.
4:30 Forceps Deliveries.
Robert M. Wagner, Minneapolis.

Thursday afternoon, Dec. 4

12:30 Forceps Deliveries.
Owen F. Robbins, Minneapolis.
4:30 Breech Deliveries.
Melvin B. Sinykin, Minneapolis.

Friday morning, Dec. 5

9:30 Forceps Operations and Breech Deliveries.
Konald A. Prem, Minneapolis.

SPECIAL EXHIBIT ON HISTORY OF MEDICINE IN MINNESOTA

Spaces 303-306

The Special Exhibit on History of Medicine in Minnesota has been prepared by a committee of which Thomas A. Peppard, Minneapolis, is Chairman.

The exhibit presents the following:

1. History of Indian Medicine in Minnesota, arranged under the direction of H. Kleinman, Minneapolis.
2. History of the Mayo Clinic, arranged under the direction of Arthur B. Hunt and Arthur H. Bulbulian, Rochester, Minn.

3. History of the University of Minnesota.
4. Illustrations showing the progress of Minneapolis hospitals.

SPECIAL EXHIBIT ON FRACTURES

Spaces 401-404

The Special Exhibit on Fractures is presented under the auspices of the following committee:

Ralph G. Carothers, Cincinnati, Chairman.
Harry B. Hall, Minneapolis.
Charles V. Heck, Chicago.

Continuous demonstrations will be conducted daily from 10 a. m. to 12 noon and from 2 to 4 p. m., Tuesday morning to Friday noon on the following subjects:

Fractures Encountered by the Front Seat Passenger in a Crash.
Fractures of the Hip.
Fractures of the Ankle.

Basic principles will be stressed and ample opportunity will be allowed for questions. Members of the committee will be present to discuss individual problems with visiting physicians. A pamphlet giving the essential features of the exhibit will be distributed. The following surgeons will assist the committee in the presentation of the exhibit:

Roy E. Brackin, Winnetka, Ill.
Wesley H. Burnham, Minneapolis.
Charles DeBold Jr., Poughkeepsie, N. Y.
Nicholas J. Giannestras, Cincinnati.
Kenneth T. Hubbard, Oak Park, Ill.
Richard H. Jones, Minneapolis.
Edward H. Juers, Red Wing, Minn.
William J. Kisiel, Springfield, Mass.
John F. Lyford III, Hines, Ill.
Andrew R. Mailer, Poplar Bluff, Mo.
Glenn Moore, Flint, Mich.
Roland F. Neumann, Minneapolis.
Frank G. Ober, Burlington, Iowa.
Frederick G. Rosendahl, Minneapolis.
Edmund T. Rumble Jr., Callicoon, N. Y.
Harley M. Sigmond, Evanston, Ill.
Garland F. Smith, St. Louis.
Franklin V. Wade, Flint, Mich.
H. L. Wormhoudt, Ottumwa, Iowa.

OBSTETRICS AND GYNECOLOGY

Space 103

Perphenazine Intramuscularly in Labor.

T. G. Gready Jr., W. J. Estrada, and Joe B. Haden, Houston, Texas.

Space 104

The Psychic Factor in Prenatal Symptomatology.

Henry A. Belafsky, Samuel Breslow, Jack E. Shangold, and Leonard M. Hirsch, Perth Amboy General Hospital, Perth Amboy, N. J.

Space 105

Perinatal Mortality Pathology.

Frederick H. Falls and Charlotte S. Holt, Illinois State Department of Public Health, Chicago.

Space 106

Clinical Evaluation of Oxytocics.

William J. Fitzgerald, A. N. Brady Maternity Hospital and Albany Medical College, Albany, N. Y.

Space 107

Care and Comfort of the Postpartum Patient.

C. Donald Kuntze, New York.

Space 108

Evaluation of Synthetic Oxytocics in Obstetrics.

Herschel S. Murphy and Ernest C. Lowenstein, Rahway Hospital, N. J.; Archibald K. Maness, Cone Memorial Hospital, Greensboro, N. C.; and Floyd D. Gindhart, McKinley Hospital, Trenton, N. J.

Space 110

Synthetic Oxytocin.

Edward H. Bishop and Paul Stroup, Pennsylvania Hospital, Philadelphia.

SURGERY

Space 111

Management of the Patient Undergoing Open Heart Surgery.

C. W. Lillehei, Herbert E. Warden, Richard A. DeWall, Vincent L. Gott, Paul C. Hodges Jr., David M. Long, Paul Adams, Ray C. Anderson, Richard L. Varco, and Owen H. Wangensteen, University of Minnesota Medical School, Minneapolis.

Space 112

Surgical Management of Carcinoma of the Rectum and Rectosigmoidal Region.

C. W. Mayo, J. M. Waugh, E. S. Judd Jr., B. M. Black, G. A. Hallenbeck, and O. H. Beahrs, Mayo Clinic and Mayo Foundation, Rochester, Minn.

Space 113

Posterior Vaginal Anus.

Edward J. Donovan, J. Frederick Eagle, and Edward G. Stanley-Brown, St. Luke's Hospital, New York.

Space 114

A Standardized Method for the Production of Reversible or Irreversible Hemorrhagic Shock in Experimental Animals.

Richard C. Lillehei, Ralph R. Rayner, and Lloyd D. MacLean, University of Minnesota Medical School, Minneapolis, and the Ancker Hospital Surgical Research Laboratory, St. Paul; and Albert Einhaber and Robert W. Clarke, Washington, D. C.

Space 115

The Etiology of Aerosinusitis and Its Treatment.

Stanley H. Bear, Maxwell Air Force Base, Montgomery, Ala.

Space 116

Pigeon Toe: Study of Border-Line and Abnormal Postures of the Lower Extremities.

Kenath H. Sponsel, Minneapolis.

Space 117

Control of Tension in General Surgery.

Timothy A. Lamphier, Boston.

Space 118

The Emergency Treatment of Massive Upper Gastrointestinal Hemorrhage by Local Gastric Hypothermia.

Owen H. Wangensteen, Harlan D. Root, Peter A. Salmon, and Ward O. Griffen Jr., University of Minnesota Medical School, Minneapolis.

ARTHRITIS AND RHEUMATISM

Space 122

Salicylate Therapy in Rheumatic Diseases.

Theodore B. Bayles and Heinrich Tenckhoff, Robert Breck Brigham Hospital, Boston.

Space 123

Gold in Rheumatoid Arthritis.

L. Maxwell Lockie and Harold M. Robins, University of Buffalo Medical School, Buffalo.

Space 124

Chloroquine and Hydroxychloroquine in Rheumatoid Disease: Five Years Experience with Continuous Therapy.

A. W. Bagnall, University of British Columbia Medical School, Vancouver, Canada.

Space 126

Intrasynovial Steroid Therapy.

Joseph L. Hollander, Ernest M. Brown Jr., Ralph A. Jessar, Nathan M. Smukler, and J. Rush Shanahan, University of Pennsylvania School of Medicine and Hospital, Philadelphia.

Space 127

Diseases of the Connective Tissues.

Bernard M. Norcross and Salvatore R. LaTona, University of Buffalo School of Medicine and Buffalo General Hospital, Buffalo.

Space 130

Information on Arthritis: Aids to the Physician and Information for the Patient.

Russell L. Cecil and R. W. Lamont-Havers, The Arthritis and Rheumatism Foundation, New York.

Space 131

Improved Anti-Rheumatoid Chrysotherapy.

Richard T. Smith, William P. Peak, Kenneth M. Kron, Irvin F. Hermann, and Russell A. Del Toro, Benjamin Franklin Clinic, Philadelphia.

Space 132

Do You Have a Question, Doctor?

John W. Sigler, Detroit; L. Maxwell Lockie, Buffalo; and Donald F. Hill, Tucson, Ariz.

Space 134

Development of a New Uricosuric Agent.

J. J. Burns, T. F. Yü, Bernard B. Brodie, Alexander B. Gutman, J. Murray Steele, and Murray Weiner, National Heart Institute, Bethesda, Md.

INTERNAL MEDICINE AND THERAPEUTICS

Space 203

Cardiac Glycosides: Therapeutic Application.

Arthur C. DeGraff, New York University College of Medicine, New York.

Space 204

Prednisone Induced Diuresis in Congestive Heart Failure.

Allen D. Riemer, Denver.

Space 206

Returning the Coronary Patient to Productivity.

Shepard Shapiro, New York.

Space 207

Edema Mechanisms and Diuretic Therapy.

John H. Moyer, John R. Beem, Morton Fuchs, Gordon Bendersky, and Lewis C. Mills, Hahnemann Medical College and Hospital of Philadelphia.

Space 208

Streptokinase Buccally in the Treatment of Infection and Edema.

Joseph M. Miller and Milton Ginsberg, Veterans Administration Hospital, Fort Howard, Md.

Space 209

Glucosamine: An Amino-Sugar with Growing Therapeutic Potentialities.

W. C. Gittinger and H. Weiner, Pfizer Laboratories, Brooklyn, N. Y.

Space 210

Antipyretic Therapy in the Febrile Infant: An Everpresent Problem.

A. A. Mintz, F. T. Matthes, and A. L. Megarity, Jefferson Davis Hospital and Baylor University College of Medicine, Houston, Texas.

Space 211

Cycloserine in High Dosage.

Marjorie M. Pyle, William Barclay, John Kasik, and Karl H. Pfuetze, Chicago State Tuberculosis Sanitarium, Chicago.

Space 212

The Improvement of Steroid Preparations.

Hubert C. Peltier, Harold L. Upjohn, Robert O. Stafford, and Robert H. Levin, The Upjohn Company, Kalamazoo, Mich.

Space 213

Formamidinyliminourea (DBI), A New Oral Hypoglycemic Agent: Comparison with Other Blood Sugar Lowering Compounds.

Leo P. Krall, Robert Bradley, and Priscilla White, Joslin Clinic, Boston; Julius Pomeranze and Raymond J. Gadek, New York Medical College, New York; and Charles Weller and Alice Macauley, Grasslands Hospital, Valhalla, N. Y.

Space 216

Preserving the Diabetic Foot from a Triple Threat.

W. L. Lowrie, H. L. Johnson, W. E. Redfern, J. B. Bryan, F. W. Whitehouse, and E. A. Kish, Henry Ford Hospital, Detroit.

Space 217

Misleading Thoracic Roentgenograms.

C. H. Hodgson, J. A. Callahan, A. J. Bruwer, and A. H. Bulbulian, Mayo Clinic and Mayo Foundation, Rochester, Minn.

Space 218

Isolated Organ Perfusion: Chemotherapeutic Application.

J. B. Aust, R. K. Ausman, and W. O. Griffen Jr., University of Minnesota Medical School, Minneapolis.

Space 219

Pulmonary Alveolar Proteinosis: A New Entity.

Samuel H. Rosen, Armed Forces Institute of Pathology, Washington, D. C.; Benjamin Castleman, Massachusetts General Hospital, Boston; and Averill A. Liebow, Yale University School of Medicine, New Haven, Conn.

Space 220

The Hamman-Rich Syndrome: Fibrosing Interstitial Pneumonitis.

H. S. Van Ordstrand, W. R. Biddlestone, L. J. McCormack, and V. E. Reinking, Cleveland Clinic, Cleveland.

GASTROENTEROLOGY

Space 221

Cholecystokinetic Effect of D-Glucitol.

Harry Tirsch, Brooklyn, N. Y.

Space 222

Sustained Release Medication in the Treatment of Gastrointestinal Disturbances.

Frederick Steigmann and Ludwig Kaminski, Cook County Hospital, Chicago.

Space 224

Treatment of Autonomic Symptoms of the Gastrointestinal Tract.

Charles Wm. Smith and Chester G. Thomas, Harrisburg Hospital, Harrisburg, Pa.

Space 225

Evaluation of a New Anticholinergic Agent on the Gastrointestinal Tract of Man.

N. C. Hightower Jr., Scott and White Clinic, Temple, Texas; and M. S. Kleckner Jr., Yale University School of Medicine, New Haven, Conn.

FOODS AND NUTRITION

Space 226

Nutrition: The Core of Growth and Development.

Harold D. Lynch and W. D. Snively Jr., Evansville, Ind.

Space 227

A Practical Approach to Management of Overweight: With Special Reference to a New Non-stimulating Anorectic.

Raymond J. Gadek, Harold S. Feldman, and Ralph Lucariello, New York Medical College, Bird S. Coler Memorial and Flower and Fifth Avenue Hospitals, New York.

Space 228

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Emanuel Dubow and Robert H. Broh-kahn, Beekman Downtown Hospital, New York.

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You Can Reduce.

Philip L. White, Eugene H. Stevenson, and Mary Jane Kibler, Council on Foods and Nutrition, American Medical Association, Chicago.

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A New Dietary Management for Hypercholesterolemia.

P. A. Boyer Jr., J. T. Lowe, R. W. Gardier, and J. D. Ralston, Pitman-Moore Company and Central State Hospital, Indianapolis.

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Meat in the Diet of Premature Infants: Influence on Red Cell Volume and Hemoglobin Mass.

Thomas R. C. Sisson and L. E. Whalen, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

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Donald R. Korst, Veterans Administration Hospital; and Ronald C. Bishop, Simpson Memorial Institute, University of Michigan Medical School, Ann Arbor, Mich.

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Iron Deficiency States: Treatment with Intramuscular Iron-Dextran Complex.

Harold S. Schiro, Cincinnati.

PSYCHIATRY AND NEUROLOGY

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Upright Dynamic Myelography.

Bruce N. Kvernland, Ray V. Grewe, and Ivan M. Woolley, Emanuel Hospital, Portland, Ore.

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Early Diagnosis and Management of Phenylketonuria.

Willard R. Centerwall and Siegried A. Centerwall, College of Medical Evangelists, Los Angeles.

Space 309

Control of Seizures and Hypertonus: Meprobamate in Tetanus, Epilepsy and Cerebral Palsy; An Evaluation.

M. A. Perlstein and Harry Elam, Cook County Hospital, Chicago.

Space 310

Treatment and Rehabilitation of Chronic Schizophrenic Patients.

George W. Brooks, Vermont State Hospital, Waterbury, Vt.; and Francis S. Irons, Vermont Vocational Rehabilitation Division, Montpelier, Vt.

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The Surgical Treatment of Syringomyelia.

W. James Gardner and Donald F. Dohn, Cleveland Clinic, Cleveland.

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Continuous Recording of Oxygen Consumption and Gross Body Activity in the Rodent: Metabolic Reactions to Stress and Their Pharmacologic Modification.

David T. Lykken and Godron T. Heistad, University of Minnesota Medical School, Minneapolis.

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Treatment of Chronic Psychosomatic Disorders in General Practice.

David M. Shoemaker and Fred J. Phillips, Quakertown, Pa.

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Neurological Examination of Infants.

Paul M. Ellwood Jr., Elizabeth Kenny Institute, University of Minnesota Medical School, Minneapolis.

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Early and Comprehensive Treatment of Parkinson's Disease.

Lewis J. Doshay, Columbia Presbyterian Medical Center, New York.

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Studies with TP 21: The Evaluation of a New Tranquilizing Drug.

V. John Kinross-Wright, Baylor University College of Medicine and Houston State Psychiatric Institute, Houston, Texas.

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Combined Dermatologic and Psychiatric Study of a New Tranquilizer.

Jay Shannon, University of Cincinnati College of Medicine, Cincinnati.

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Causes and Treatment of Tension in Young Adults.

Elliot J. Margolis, William J. Cauffman, William G. Pauley, and Paul C. Gregg, Levittown, Pa.

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Newer Knowledge of Non-Migrainous Headaches.

Adrian M. Ostfeld, University of Illinois Research and Educational Hospitals, Chicago.

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Frontal Headache.

Henry D. Ogden, Louisiana State University School of Medicine, New Orleans.

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Headpain.

F. W. Wittich, Minneapolis.

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Alcoholism: A Basic Approach to Treatment.

Leon A. Greenberg, Yale Center of Alcohol Studies, New Haven, Conn.

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Community Roles in the Rehabilitation of the Alcoholic.

J. J. Van Gasse and Edward L. Costello, Wyckoff, N. J.

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Alcoholism: Alcoholism is Your Business.

Marvin A. Block, Buffalo, Committee on Alcoholism, American Medical Association.

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A Comparison of Blood Pressure and Pulse Changes: Citrated Calcium Carbimide-Alcohol and Disulfiram-Alcohol Reactions.

Jackson A. Smith, Jack A. Wolford, Marilyn Weber, and Dougald McLean, Nebraska Psychiatric Institute, Omaha.

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Blood Smears: Their Value in General Diagnosis.

E. D. Bayrd and A. B. Hagedorn, Mayo Clinic and Mayo Foundation, Rochester, Minn.

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Diagnostic Bone Marrow Patterns: Demonstrations of Sections, Imprints, and Smear Preparations of Bone Marrow.

N. H. Lufkin, W. A. Chadbourn, and E. M. Schleicher, St. Barnabas Hospital, Minneapolis.

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The History of Blood Transfusion.

G. ALBIN MATSON, Minneapolis War Memorial Blood Bank, Minneapolis.

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Adenovirus—A Serologic Study

FRANK COX JR., E. A. TIMM, E. L. QUINN, J. M. COLVILLE, and I. WILLIAM MCLEAN, Henry Ford Hospital, Detroit.

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Cutaneous Biopsy as a Diagnostic Aid in Systemic Disease.

RAMON M. FUSARO, ROBERT W. GOLTZ, and FRANCIS W. LYNCH, University of Minnesota Medical School, Minneapolis.

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Prevention of Transfusion Reactions: Use of Intravenous Prednisolone.

FREDERICK M. OFFENKRANTZ and GEORGE BABCOCK JR., Riverside Hospital, Boonton, N. J.; and ANCEL BLAUSTEIN, Booth Memorial Hospital, Flushing, N .Y.

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Laboratory Diagnosis of Aseptic Meningitis.

GILBERT DALLDORF and HENRY W. KUMM, The National Foundation, New York.

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Studies of Cancer Cells in Circulatory Blood.

JOHN C. PRUITT, ALBERT W. HILBERG, RICHARD A. MALMGREN, JOHN F. POTTER, and RAYMOND F. KAISER, National Cancer Institute, Bethesda, Md.

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Improving Patient Care and Professional Service.

ARTHUR H. DEARING, M. E. THULIS, and RUTH CHARTRAND, College of American Pathologists, Chicago.

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Medical Education.

EDWARD L. TURNER and CATHERINE HAYES, Council on Medical Education and Hospitals, American Medical Association, Chicago.

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A Contribution to Medicine.

JOHN BOYD COATES JR., and WILBOUR C. LOWN, Walter Reed Army Medical Center, Washington, D. C.

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Theatrical Motion Pictures, Television and Radio.

EUGENE F. HOFFMAN, Los Angeles, and GERALD D. DORMAN, New York, Physicians Advisory Committee on Television, Radio and Motion Pictures, American Medical Association.

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Opportunities in Postgraduate Medical Education.

C. E. DE LA CHAPELLE, New York University–Bellevue Medical Center, New York.

PHYSICAL FITNESS AND EXERCISE

Space 425

The Seven Paths to Fitness.

W. W. BAUER, WILLIAM BOLTON, D. A. DUKELOW, FRED V. HEIN, and WALLACE WESLEY, Bureau of Health Education, American Medical Association, Chicago.

Space 426

Boxing Hematuria.

A. H. KLEIMAN, Polyclinic Medical School and Hospital and New York State Athletic Commission, New York.

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Medical Responsibility in Skin Diving Accidents.

JAMES K. MARTINS and JOSETTE ANN MARTINS, Eau Claire, Wis.

MISCELLANEOUS TOPICS

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Experience with the Artificial Kidney.

GEORGE E. SCHREINER and JOHN F. MAHER, Georgetown University School of Medicine, Washington, D. C.

Space 433

Is It An Allergy? A Scoring System for Diagnosis.

JAMES M. STEELE, Guthrie Clinic and Robert Packer Hospital, Sayre, Pa.

Space 434

The Certified Orthotist and Prosthetist: A Craft Developing into an Ancillary Profession.

LESTER A. SMITH, American Board for Certification, Washington, D. C.

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Cerumenolysis, A New Clinical Technique.

ALFRED HALPERN, ARTHUR REINIGER, GEORGE BIALKIN, and A. J. MONTEBOVI, New York; MANNING J. ROSNICK, Miami, Fla.; and JAMES Q. GANT, Washington, D. C.

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Common Ocular Problems.

DAN M. GORDON, New York Hospital, Cornell Medical Center, and the L. Margolyes League, New York.

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Rehabilitation of the Quadriplegic Patient.

FRANK J. SCHAFFER and A. B. C. KNUDSON, Physical Medicine and Rehabilitation Service, Veterans Administration, Washington, D. C.

Space 444

Aging—A Challenge to the Medical Profession.

GEORGE COOLEY, Committee on Aging, Council on Medical Service, American Medical Association, Chicago.

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An Oral Antipruritic in General Practice.

ROBERT F. KIENHOFER, Lakewood, Calif.

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Strike Back at Stroke: Early Mobilization of the Stroke Patient.

BERNARD D. DAITZ, PAUL Q. PETERSON, and S. D. POMRINSE, Chronic Disease Program, Public Health Service, and JOSEPHINE J. BUCHANAN, District of Columbia General Hospital, Washington, D. C.

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Ureteral Antispasmodics: Experiences with Atratan.

MILES W. THOMLEY, LOUIS M. ORR, JAMES L. CAMPBELL, and JAMES B. JAMISON, Orlando, Fla.

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Tobacco and Health: Research Program.

ROBERT C. HOCKETT, Tobacco Industry Research Committee, New York.

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Reduction of Intracranial and Intraocular Pressure with Urea.

MANUCHER JAVID, University of Wisconsin Medical School, Madison, Wis.

REPORTS OF OFFICERS

REPORT OF BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Board of Trustees is respectfully submitted:

Report on Matters Referred by House of Delegates

All resolutions referred to the Board of Trustees by the House of Delegates at its meeting in June, 1958, have been forwarded to the several councils, committees, and departments of the Association concerned for study. As soon as reports are available from these groups, they will be transmitted to the House of Delegates for action.

Distinguished Service Award

The Board wishes to urge that members of the Association submit nominations for the Distinguished Service award. If possible, these nominations should be received in the office of the Executive Vice-President by March 1.

Annual and Clinical Meetings

The following places and dates have been selected for the Annual and Clinical Meetings of the Association:

Annual Meetings:	1959—Atlantic City, June 8-12
	1960—Miami Beach, June 13-17
	1961—New York, June 19-23
Clinical Meetings:	1959—Dallas, Dec. 1-4
	1960—Washington, D.C., Nov. 29-Dec. 2
	1961—Denver, Nov. 28-Dec. 1

Reorganization

From June, 1957, to Dec. 31, 1957, the position of General Manager was filled by Dr. George F. Lull, who became Assistant to the President on Jan. 1, 1958. Dr. F. J. L. Blasingame became the General Manager on Jan. 1, 1958, and conducted the administrative affairs of the Association in that capacity until the meeting of the House of Delegates in San Francisco in June when, by action of the House, the position of General Manager was eliminated and that of Executive Vice-President was substituted. The Board of Trustees officially designated Dr. Blasingame to that position and Dr. Ernest B. Howard to the position of Assistant Executive Vice-President at its meeting immediately following the adjournment of the House of Delegates.

Since Jan. 1 Dr. Blasingame has recommended and the Board has approved many changes in the headquarters office administrative set-up which has resulted in smooth functioning and efficient operation of the various departments. Additional recommendations are being readied for consideration by the Board of Trustees and will be reported at a later date.

PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

The Journal of the American Medical Association

Although a survey was not made during 1958 the acceptance of The Journal as a source of information on scientific medicine and medical organizational events seems to be increasing. Surveys during the past eight years have revealed the coverage broadly desired by readers. These wishes have been met as circumstances have permitted and will be respected in the future. While an adequate résumé is difficult to prepare within the limits seemingly appropriate for an annual report to the House of Delegates, some indication of the activities for the past year can be gained by focusing attention on a few highlights.

The number of editorial pages published between July 1, 1957, and June 30, 1958, was 6,899. Advertising pages exceeded 6,500. During this time almost 700 manuscripts appeared in The Journal. Several special issues appeared which featured conventions, state board data, postgraduate courses, internships and residencies, and medical education.

An unique service provided through The Journal in 1958 was the issuance of three special numbers, one in February, one in March, and one in June. They were entitled:

"A Guide to the Evaluation of Permanent Impairment of the Extremities of the Back"
"Federal Income Tax Guide for Physicians"
"Principles of Medical Ethics: Opinions and Reports of the Judicial Council"

The response was sufficient to justify the hope that this practice can be followed selectively in the future as the need arises.

Seventy-Fifth Anniversary.—The July 12 issue of The Journal commemorated its 75th birthday. Developing the theme "Partners in Progress" contributors representing varying walks of life joined hands editorially to emphasize how medicine serves the community and in turn how other phases of community life affect medicine. This issue of The Journal was widely quoted and reprints of the articles are reported to be widely circulated. Some articles were reproduced in other periodicals, for example, John Steinbeck's story of the dedication of a boy and his family to obtaining a medical degree. Unforunately not all phases of community life could be represented, but reports seem to indicate that this rather unusual approach for an anniversary issue of a medical journal reached the objective in mind for it.

Medicine at Work.—There appears to be continued growth in readership of the section entitled Medicine at Work. Begun in 1956, this department attempts to document in highly readable form the significance of physician activities as they relate to nonmedical groups and individuals cooperatively engaged in health betterment along specific lines. During the past year (July 1, 1957, to June 30, 1958) Medicine at Work has explored "in depth" such varied subjects as aging, disaster preparedness, world medicine, rehabilitation, serendipity, grievance committees, and hospital care. Over 600 tear-sheets of these articles have been sent, on request, to physicians in private practice, armed forces, government agencies, hospitals, local health departments, medical centers, private research laboratories, and universities. The requests have come from 32 states and 7 foreign countries. Summaries of the articles have appeared in editorial and news columns of more than 400 daily and weekly newspapers. Digests or complete reproductions have been published in *Reader's Digest, Catholic Digest, Changing Times, Farm Journal, Best Articles & Stories, Today's Health, Trustee, Biochemic Review, Science News Letter,* and several score other lay, medical, and allied scientific journals. One Medicine at Work article (on religion and medicine) drew an audience of additional millions this year when the *Reader's Digest* translated an earlier condensation of it for five international editions and encouraged a team of English writers to adapt the article for *Digest* readers in Britain (crediting The Journal as the basic source). Because this total response to Medicine at Work now clearly illustrates the filling of a need in medical journalism, Mr. Milton Golin, who has handled this department, is assigned the task of adapting that feature-story format into a distinctive new section with the help of two new staff members. This section will include, in addition to the "in depth" feature, a planned layout of briefer and more varied items about activities more precisely within the medical profession and the A. M. A. organization. These items of significance will be reported in an interpretive tone similar to that of the Medicine at Work articles.

Medical News.—Eighteen hundred items were published in the Medical News section of THE JOURNAL during the year ended June 30, 1958. These reports originated from 47 states, Alaska, the District of Columbia, the Hawaiian Islands, Guam, the Canal Zone, Puerto Rico, and 72 foreign countries. Subjects ranged from medical conferences to licensure, and also included news about construction and expansion of hospitals and other health facilities, personnel changes, medical association elections, research studies, fellowships and awards, personals, public health, medical schools, clinics, and health surveys. During the year 295 JOURNAL pages were devoted to these news items and to 27 photographs and two maps relating to the items. In the same period, 3,922 *obituary notices* were published.

Questions and Answers.—More than 2,000 questions relating to practical medical problems were received in THE JOURNAL office. Answers to questions were prepared by 900 consultants recognized as competent authorities by the majority of the medical profession. Incidentally, the opinions offered as answers in the Questions and Answers section of THE JOURNAL are never intended to represent those of the American Medical Association or any other medical organization.

During the same 12-month period 754 Questions and Answers were published in THE JOURNAL. In addition, 72 comments concerning previous questions were also published utilizing a total of 292 pages of JOURNAL space. While there were 20% less Questions and Answers published than during the preceding year, 20% more page space was devoted to that section. As during the preceding years the predominant requests for clinical information were in the fields of dermatology and allergy. However, paralleling the number of questions concerning dermatology and allergy were inquiries concerning nutrition in medical practice. The number of questions on diet as a preventive and therapeutic tool would certainly seem to indicate an intense interest in this subject matter by the practicing physician. Based on the type of questions received after the previously mentioned subjects, expressed interest in the descending order seems to be in the field of industrial medicine, gastroenterology, obstetrics and gynecology, urology (primarily males), clinical pathology, endocrinology, and pharmacology. In every category there are always questions concerning the rare lesion or symptom seen for the first time by the inquiring physician.

In order to assure both the consultant and the eventual reader of the Question and Answer that the question comes from a reputable physician, therefore keeping the tenure of the question both medically reasonable and at the same time avoiding the propagation of "quack" information, every letter to THE JOURNAL must contain the writer's name and address before it can be considered. When, however, the inquiring physician requests his name be omitted, his request is meticulously observed. The consultant always remains unidentified. This not only allows the authority who answers the question to be completely unbiased, but at the same time it prevents his entering into profuse correspondence which would more than tax his already overworked schedule.

Medical Literature Abstracts.—THE JOURNAL first established an abstract service in 1899 under the departmental title "Current Medical Literature." This title was changed in 1954 to "Medical Literature Abstracts." Approximately 2,600 articles are abstracted each year; and 80 pages of abstracts as an average are published each month. These are taken from journals that may be published weekly, monthly, or even less frequently, so probably not more than 80 different publications are represented in one month. However, over a period of four months abstracts are made from as many as 250 different publications. Approximately two-thirds of the abstracts appearing in THE JOURNAL are from foreign language journals and one-third from publications of the British Commonwealth.

Specialty Journals

The analysis of the Specialty Journals has about run its course for any large scale improvement. Extensive changes in the department operation, and in re-designing the journals, have been accomplished. Improvement is, of course, a never-ending management responsibility involving the elimination of details which serve no useful purpose in the mechanical processing of articles. This goes on.

The Editorial Boards of several Specialty Journals are re-examining editorial policy. The *Archives of Internal Medicine,* for example, has become more departmentalized. These departments include Editorials, Reviews of Internal Medicine, Treatment in Internal Medicine, Evolution of Modern Medicine, Contributions of Basic Science to Modern Medicine, and greater emphasis on book reviews. The *Journal of Diseases of Children* has shifted its emphasis from a journal of abstracts to one of original articles and case studies. Its emphasis is on the academic side of the specialty. With more of the Editorial Boards meeting for the express purpose of re-examining editorial policy, it is anticipated that more of them will reveal definite planning as opposed to complete reliance on contributions. In every case, quality is the goal of editorial policy.

The *Archives of Industrial Health* has taken two important steps in becoming of greater service to more physicians in the various branches of Industrial Health. The American Academy of Occupational Medicine now designates the *Archives of Industrial Health* as its official organ. During the course of the year, the *Archives* also established an unofficial association with the Industrial Hygiene Foundation. In each instance, the papers presented at the Annual Meetings of these associations will be published as symposiums. The May, 1958, issue of the *Archives* carried the complete program of the Industrial Hygiene Foundation. The papers from the American Academy of Occupational Medicine will appear in the August, 1958, number.

There has been a heavy increase in the material published through this year. A supplement to the *Journal of Diseases of Children* was published in January on the subject, "The Prevention of Mental Retardation." A "Symposium on Visual Mechanisms" was published as a supplement to the *Archives of Ophthalmology* in October. The *Archives of Internal Medicine,* February issue, was twice its normal size as a result of publishing a collection of papers dedicated to Dr. William B. Castle. The *Archives of Pathology,* October issue, also was an enlarged dedicatory number to Dr. Shields Warren. At the beginning of the year the *Archives of Neurology and Psychiatry* was increased in size from 128 pages to 160 and the *Archives of Ophthalmology* from 192 pages to 208.

During the first eight months of 1958 the Specialty Journals published 1,078 original articles, 27 progress reports or general reviews, 132 case reports or clinical reports, 10 illustrated articles or scientific exhibits, and 9 editorials, or a total of 1,256 articles. The total of unpublished articles for all Specialty Journals is 845. It is anticipated that 625 more papers, covering all categories, will be published during the remainder of the year. The number of articles published in 1958 represents an increase of approximately 10% over the volume of scientific papers published during the first eight months of 1957. For this eight-month period there were 7.2% more pages of editorial matter in 1958 than in 1957.

One really new development in the Specialty Journals Department during 1958 is a new journal which is to be distributed to A. M. A. members as a benefit of membership. The A. M. A. Annual Convention will be the main source of its content. The title *Medicorama* has been selected because it appropriately expresses the vastness of the A. M. A. Convention and its total coverage of all medical branches.

The Section Secretaries make up the Board of Directing Editors. With this new journal as its publication outlet, the Directing Editors can plan at least in part the program for the Annual Meeting with a view to satisfying the needs of the A. M. A. total membership for literature on current medical problems.

Medicorama is a Specialty Journal in a different sense. It is to emphasize the interrelationship of the several sections of medicine in the discussion of a medical problem. It will, therefore, be valuable reading to all physicians rather than to one specialty. The contents of each issue of *Medicorama* will be planned. The conferences, panel discussions, and symposiums, individual papers, scientific exhibits and film reviews, all dealing with a common subject, will be brought together in one issue. In effect, each number of this publication will be a monograph which, for most practical purposes, will collate, coordinate, and integrate fragments of information for its readers.

The schedule for this journal calls for bi-monthly publication following the 1959 Annual Meeting, with the prospect of becoming a monthly publication following the 1960 convention. Two pilot issues are scheduled from the 1958 meeting in San Francisco. The first number, covering the subject, "Diagnostic Radiology," will be distributed February, 1959. The subjects, "Atherosclerosis" and "Psychiatric Emergencies in General Practice" will be reported in a May, 1959, number.

Despite this accelerated program, the Specialty Journals, as a group, remains on a desirable financial basis. The trend in the sale of advertising space is upward. There is evidence of an awakened interest in the possibility these journals offer. The editorial quality is ever improving, and all but two of these nine journals have comparable or top circulation among the specialty publications in their field.

Quarterly Cumulative Index Medicus

As usual two volumes of the Quarterly Cumulative Index Medicus have been printed during this fiscal year, Volume 57 in October, 1957, and Volume 58 in April, 1958. The former covers literature received from January through June, 1955, and the latter from July through December of that year. This still leaves the Index two years behind the previous publication schedule. The situation has shown little improvement in the past year for the same reasons that were mentioned in earlier reports. As of June 30, Volume 59 (January-June 1956) was in press and nearing the final stages of production. The cards for Volume 60 (July-December 1956) were practically ready to be processed. A system of prechecking copy has been devised to speed the work of editing this volume, and streamlining certain steps in revising cards and proofreading should also help.

The periodicals indexed have been divided into two groups, one including English-language journals and the other foreign-language publications. The former are processed as they are received and copy covering them is usually in file within two or three weeks. Part of the copy for the book section is also prepared currently. These are entries for books received for review and listed in THE JOURNAL of the American Medical Association. The rest of the titles are collected from book lists, catalogs, advertisements, and other sources just before each volume goes to press.

The Index remains fairly constant in size though 16 periodicals were added in Volume 57, and 10 in Volume 58. Volume 57 covered 32,175 articles and required 113,000 separate entries; Volume 58 included 31,213 titles with 111,300 entries. There were 1,346 books listed in Volume 57, and 1,318 in Volume 58.

Of the regular complement of 28 employees, 11 have left during the year, and 3 have taken long leaves of absence. In making replacements, the aim has been to maintain quality requirements even though the employment market for this type of work is still tight.

Standard Nomenclature of Diseases and Operations

In recent years, there have been notable advances in the knowledge of diseases and operations. Much of the information acquired has resulted from research, observations, and experimental data. Correct and acceptable terminology is being more and more emphasized. It is from comparable research that pathways are opened for improved methods of diagnoses, treatment, and care of the sick and injured. Results of the Standard Nomenclature Committees in their united effort to encourage the use of acceptable terminology have been far reaching, and their efforts will continue to be recognized as long as they continue to function.

Great strides have been made toward the completion of the Fifth Edition of the Nomenclature. Our Committees consider correct and acceptable terminology to be one of the paramount aids to education, communications, and research in the health program and are endeavoring to reevaluate their particular sections of the nomenclature with this in mind.

The editors are working cooperatively with all committees. The Dental Committee has had two meetings, and its section is ready for typing in final form. The Psychiatric Section has been presented for final approval. The Toxicology Committee met in Washington, D. C., on April 16, 1958, and another meeting is planned for September, 1958. As knowledge concerning toxicology has accumulated very rapidly in the past 10 years, it will be necessary to add, delete, and change this section extensively. The Respiratory, Ophthalmology, Urology, Dermatology, Cardiology, Hematology, and Female Genital Committees have all presented additional data. As the various sections are completed, they will be typed and mailed to each member of the respective committee for his final evaluation. It is anticipated that all material will be ready for publication by December 31, 1959.

The correspondence has continued to increase during the past year. Over 5,000 queries have been answered by the editors, and over 3,000 letters have come to the Standard Nomenclature Office, relating to specific and special Nomenclature problems, queries relative to recommended installation procedures, use of the Nomenclature in doctors' offices, medical clinics, pathology departments, tumor clinics, for filing medical literature, slides, and medical motion pictures.

The American Medical Association has conducted 12 Standard Nomenclature Institutes to date: Four at headquarters in Chicago, one in New York City, Atlantic City, N. J., Roanoke, Va., Indianapolis, Atlanta, Ga., Tulsa, Okla., San Francisco, and Boston. Approximately 1,400 students have been accommodated. These Institutes are tuition-free and are offered as a service to anyone using or interested in installing the Nomenclature. Nurses, doctors' secretaries, clinic clerks, statisticians, medical record clerks, technicians, and librarians, administrators, clinic directors, and physicians have attended. The teaching is under the direction of the editors. The program consists of elementary anatomy as it pertains to the topography of the Nomenclature and sound principles basic to the Nomenclature as well as recommended methods of installation and maintenance. Twenty-five states, Canada, and the territory of Hawaii have been represented. The Institutes are planned through 1961. In 1959, educational programs will be conducted in Tennessee, Washington state, and New York.

The Standard Nomenclature editors are working closely with the Bureau of Medical Economic Research on its project "Totality of Physicians' Service in Hospitals." It is anticipated that a satisfactory Clinical Statistical Classification may be devised from this project which will meet the needs of researchers throughout the country.

All articles published in The Journal of the American Medical Association are coded according to Standard Nomenlature and classified by disease, operation, and author. A special file is maintained by Standard Nomenclature personnel for articles on various drugs.

Standard Nomenclature exhibits have been shown at national meetings in Milwaukee, Atlantic City, and San Francisco. These exhibits acquaint physicians and lay personnel with the organization of the Nomenclature, how the committees work, and emphasizes instructions in use of the Nomenclature.

During the past year, in addition to the regularly sponsored Institutes, the Nomenclature Department has participated in state Institutes in Iowa and Indiana and in a two-day Standard Nomenclature program sponsored by the School of Hospital Administration of the Committee of the Hospitals of Quebec in Ottawa, Ontario. All lectures given at this Institute were translated into French and distributed to the students.

In addition to the regular routine work on the Nomenclature, a Second Supplement was compiled and printed in February, 1958. This supplement is now being distributed from headquarters, on request. A list of acceptable abbreviations is being compiled and is expected to be ready for distribution within the next year. A trial correspondence course in Standard Nomenclature is being conducted. Three students are participating in the pilot study.

In the interim between editions, it is necessary to add, condense, and completely rewrite certain sections of the Nomenclature; but it is the objective of the editors to accommodate the new knowledge without sacrificing essential data or materially increasing the size of the Nomenclature volume.

Today's Health

In the 12 months covered by this report *Today's Health* has undergone many changes which have resulted in an improved publication.

In July, 1957, *Today's Health* was given authorization from the Board of Trustees to undertake a complete reorganization of the *Today's Health* headquarters staff. This was a direct result of a proposal made in November, 1956, and based on the premise that "there is nothing wrong with *Today's Health* that cannot be corrected by following professional magazine publishing practice."

From an administrative standpoint, the major organizational changes took place in the Editorial Department. *Today's Health* was fortunate to secure the services of Mr. James M. Liston, former Special Features Editor of *Better Homes & Gardens,* as Editor. Mr. Liston is the first full-time editor the magazine has ever had, and he brought with him a thorough understanding of consumer magazine publishing. Shortly thereafter, two new Associate Editors, an Art Director, and a Production Coordinator were added to the editorial staff; the magazine was placed in the hands of one of the country's leading magazine artists who was commissioned to design the new *Today's Health;* a new technique of pictorial journalism was introduced along with a bright, cogent style designed to deliver the facts with a minimum of effort for today's busy reader; special editorial features were published that show people how to enjoy better health through better living; and, of course, *Today's Health* continued to build a reputation for publishing the definitive story in order to maintain reader confidence and acceptance.

In addition to a complete restyling of the format and a broadened editorial approach, one of the most significant changes was the expansion of the subtitle to read "Published by the American Medical Association FOR THE AMERICAN FAMILY." This clearly defines the editorial purpose of the magazine as well as the readership.

The new *Today's Health* was introduced to the general public with the May, 1958, issue. The reception was spontaneous and excellent as reflected by "fan mail," increased circulation, and increased advertising. *Today's Health* is being quoted more than ever before, and article reprints are at an all-time high.

It is an established fact that advertising revenue is the lifeblood of most magazines, and that is particularly true of *Today's Health.*

During the period covered by this report, the advertising sales staff was expanded by the addition of a third man in the New York office and commisioned representation on the West Coast and in the Southern states. Adequate office facilities were secured in New York and certain organizational changes were made in the headquarters office. All of this, together with intensified sales promotion and merchandising services and a "new" magazine, resulted in a substantial revenue gain over the previous year. Advertising renewals and the establishment of new advertising accounts point to an extremely bright future.

The addition of a Production Coordinator to the *Today's Health* staff has been particularly helpful to the advertising department. New production controls and procedures have been established, and liaison between the Advertising and Editorial Departments is excellent.

In August, 1957, a *Today's Health* Advertising Review Committee was appointed. Miss Evelyn J. Dyba was appointed advertising Copy Supervisor. Operating on a set of established Principles this committee has been very valuable to all phases of the magazine's operation.

AMA News

In accordance with various actions taken by the House of Delegates regarding a mechanism of communication for disseminating medicine's message to members of the American Medical Association and others in the health field, the Board of Trustees approved the establishment of a biweekly newspaper—*The AMA News.*

The newspaper will be edited with the idea of keeping the physician informed in the medicoeconomic field, concentrating on news not now carried in the A. M. A. journals.

The editor of *The AMA News* arrived at Chicago headquarters June 1, so actually this report covers the period from June 1, 1958, to June 30, 1958.

During June a printer was engaged and plans were completed to publish a pilot issue Aug. 11. First issue of *The AMA News* was distributed Sept. 22.

A format of the front page appeared on page three of the June 23 issue of the *Daily Bulletin* during the San Francisco convention.

LIBRARY

The Library has had another busy year. Altogether 3,175 letters involving reference work were received. In response, 2,170 package libraries were prepared for borrowers and 1,000 other requests were filled. These required a search of the literature, preparation of lists of books and articles, and location of various information. In addition, numbers of unrecorded questions were answered by phone and in person. The reference department has given special attention to supplying lists of recent references from the files for future volumes of the Quarterly Cumulative Index Medicus, and also to include reprints of this material in package libraries.

The Periodical Lending Service has recorded 9,900 loans in this period, 3,410 for package libraries. There were 2,515 intramural loans aside from the usual circulation of journals when first received.

A special effort has been made to increase the number of reprints, tear sheets, and other material in the package library files so that these may be substituted for complete journals in loaning material. This cuts postal charges and also the loss of periodicals which usually have to be replaced. Considerable use has also been made of Thermofax copies of shorter articles and those in repeated demand. Since there have been numerous requests from physicians and librarians for information on the organization of medical libraries in county societies, hospitals and clinics and on medical careers, attention has also been given to acquiring material on these two popular subjects outside the clinical field.

There were 292 book titles added to the catalog this year and 177 withdrawn, leaving a total of 4,320 including bound serials. As stated before, the aim is to keep the book collection current and useful without exceeding 5,000 volumes.

At the end of last December the Library was receiving 1,600 periodicals, almost evenly divided between English-language and foreign-language publications. During the report period 150 titles not previously received in the Library were noted, 60 of them entirely new publications. Of the total, 29 were boxed in the regular files and 51 referred to the sample collection. The rest were distributed to other departments and libraries.

The Library, as always, has recorded the books sent for review in THE JOURNAL of the American Medical Association and prepared the lists for the Books Received column. 1,477 publications were handled this year, many of them assigned for review. The details of this operation are also part of the Library routine.

Another regular duty of the Library is the compilation of an index to each of the three volumes of THE JOURNAL of the American Medical Association that appear annually.

Five members of the Library staff attended the refresher courses in medical library science which were offered by the Medical Library Association just before its annual meeting in June. These sessions proved most profitable to all whom it was possible to send.

LAW DEPARTMENT

This report covers the activities of the Law Department from July 1, 1957, to June 30, 1958. During this period the Department has continued to operate as the coordinating agency for the legal activities of the Association. In addition the Department provided staff assistance for the Judicial Council, the Committee on Legislation, the Council on Constitution and Bylaws, the Committee on Medicolegal Problems, and numerous other temporary committees.

Under the direction of the Secretary and General Manager and the Executive Vice-President, the Department has acted as legal adviser to the Board of Trustees and the House of Delegates, as well as to the officers and executive staff of the Association. This work has involved a variety of legal problems dealing with contracts, taxes, leases, copyrights, trade-marks, antitrust law, libel, slander, and insurance.

In association with outside legal counsel, members of the staff of the Law Department have provided advice in these matters and in handling four court cases to which the American Medical Association was a party.

Liaison Activities

Inter-Association Work.—Each of the attorneys on the staff of the Department continued to maintain liaison with one or more of the Association's permanent councils and committees by attending meetings, assisting in the answering of correspondence, reviewing prospective programs and giving oral and written legal advice. In addition, members of the staff have attended meetings and have provided legal and administrative assistance to numerous temporary committees and subcommittees of the Association. Examples of these special committees staffed by the Director or members of the staff include:

American Medical Association-American Bar Association Liaison Committee
American Medical Association-American Hospital Association Liaison Committee
Committee to Review the Heller Management Survey Report
American Medical Association-American Bar Association Committee on Narcotic Addiction
American Medical Association-American Hospital Association Joint Committee on Medical Professional Liability
Committee to Review Controversy between the Medical College of Georgia and the County and State Medical Societies

Medical Societies and Individual Physicians.—The Department has, through correspondence and personal visits, maintained contact with the executive secretaries and the legal counsel for state and county medical societies. Representatives of the Department have on request spoken at, or presented programs on medical-legal subjects at, state and local medical meetings and at joint medical-legal conferences.

The staff of the Department has also staffed and explained exhibits on Medical Professional Liability and the Drinking Driver at state and county medical meetings. These exhibits have been shown on 22 occasions.

In an effort to keep the legal counsel and executive secretaries of the medical societies advised of current legal activities, court decisions, and trends affecting medical societies and individual physicians, the Law Department initiated a periodical newsletter identified as "The Citation." The first issue was published on May 9, 1958.

Although a statistical record has not been kept of the number of letters received and answered, there is no doubt that several thousand inquiries were handled by the Department during the period of this report. These letters from individual physicians, attorneys, medical societies, and outside organizations deal with a wide variety of problems in the medical-legal field.

In the opinion of the Department, one of the most significant and successful activities during the year was the Second National Conference for Attorneys and Executive Secretaries of state and county medical societies. The two-day meeting which was held on May 9-10 was attended by 142 attorneys and executive secretaries. During the meeting 16 speakers presented papers and answered questions on the following subjects:

Legal Aspects of Medical Practice Through "Third-Party" Mechanisms
Medical Professional Liability
Libel, Slander, and Privacy in Medicine
Legislation and Lobbying Practices of State Medical Societies
Tax Advantages of Corporations and Unincorporated Associations

Medical-Legal Relations.—During the period of the report the Department has encouraged and participated in joint medical-legal conferences at the national, state, and local levels. Assistance has been provided in the negotiation of written codes of understanding between physicians and attorneys. Most significant in this regard was the assistance rendered to the American Medical Association–American Bar Association Liaison Committee in the drafting of a national Inter-Professional Code which was approved by the House of Delegates of the American Medical Association at its meeting in June. It is anticipated that the same Code will be endorsed by the House of Delegates of the American Bar Association at its meeting in August, 1958.

During the year, the Director of the Law Department was invited and agreed to participate as a member of the National Advisory Council of the Law-Medicine Research Institute of Boston University. The aim of the Law-Medicine Research Institute will be to bring together leading authorities in the fields of law, medicine, the behavioral sciences, and related areas to work on problems of mutual concern.

National Association.—Members of the staff attended or participated on the programs of the following national associations:

- International Association of Insurance Counsel
- Association of American Railroads
- Radiological Society of North America
- American Society of Clinical Pathologists and College of American Pathologists
- Northwestern University Traffic Institute
- International Association of Research Anesthesiologists
- American Standards Association
- Association of Medical Secretaries and Assistants
- American Association of Medical Clinics
- National Safety Council
- American Veterinary Medical Association
- National Association of Defense Attorneys
- National Association of Claimants Compensation Attorneys
- American Bar Association

Preparation or Review of Published Material

The Department has continued to work closely with the editors and the staffs of THE JOURNAL, specialty journals, and *Today's Health* in preparing special articles, book reviews, and editorials. Assistance has also been provided in reviewing material submitted from other sources with possible legal implications.

The following list indicated the material prepared by the Department and the dates of publication:

Professional Liability	
Profesional Liability Involving Physicians in Federal Government Service	Sept. 28, 1957
Analysis of Professional Liability Claims and Suits	Oct. 5, 1957
Medical Defense in the United Kingdom	April 26, 1958
Review of Medical Professional Liability Claims and Suits	May 10, 1958
Medicolegal Forms	
Consent to Operations and Other Procedures	Sept. 7, 1957
Patient's Right to Privacy	Sept. 14, 1957
Confidential Communications and Records	Sept. 21, 1957
Artificial Insemination	Sept. 28, 1957
The Physician-Patient Relationship	Oct. 5. 1957
Autopsy	Oct. 12, 1957
Miscellaneous	
Complaint Against a Physician Submitted to a Medical Society—Basis for Libel Action by the Physician	Sept. 21, 1957
Medical-Legal Problems and Their Solutions	Oct. 12, 1957
Use of Paternity Tests in Criminal Proceedings for Nonsupport	Dec. 28, 1957
The Sherman Act and the Practice of Medicine	Jan. 4, 1958
Fraudulent Concealment of a Patient's Cause of Action	Jan. 11, 1958
Use of Pooled Plasma as a Medicolegal Hazard	Jan. 18, 1958
Salga v. Stanford University Hospital (Gerbode Case)	Jan. 25, 1958
Medicolegal Aspects of Sterilization, Artificial Insemination and Abortion	Feb. 8, 1958
Opinions of the Judicial Council	Feb. 15, 1958
Ownership of and Access to Hospital Records	Feb. 15, 1958
Physical Examination of Plaintiff on Motion of Defendant	Feb. 22, 1958
Chemical Tests for Intoxication—"Implied Consent" Laws	June 14, 1958

The most significant contribution of the Department in this regard was the preparation and publication of the following three items:

(a) **"Medicolegal Forms with Legal Analysis."**—This booklet of 111 pages includes 42 suggested forms, explanatory text material, and case citations dealing with: Consent to Operations and Other Procedures; Patient's Right to Privacy; Confidential Communications and Records; Artificial Insemination; The Physician-Patient Relationship and Autopsies. To date these booklets have been distributed to members of the American Medical Association without charge and to other interested parties and organizations at one dollar a copy. Thus far 7,700 booklets have been distributed.

(b) **Special Edition of THE JOURNAL** dated March 1, 1958, entitled "Federal Income Tax Guide for Physicians." This item was distributed as a special edition of THE JOURNAL to all members of the Association.

(c) **Special Edition of THE JOURNAL** dated June 7, 1958, entitled "Opinions and Reports of the Judicial Council." This item was distributed as a special edition of THE JOURNAL to all members of the Association.

Special Projects of Medicolegal Significance

During the year the Department planned, developed, and directed a number of projects of substantial importance to the medical profession and the Association. Some of the more important ones were:

Medicolegal Film Series.—The Department assisted in the preparation of the script and advised in the production of a medicolegal film dealing with traumatic neurosis entitled "The Man Who Didn't Walk." This film was previewed at the Association's annual meeting in San Francisco in June. It was the third in a series of six to be prepared jointly by the American Medical Association and the American Bar Association with the financial assistance of the Wm. S. Merrell Company of Cincinnati.

Student Medicolegal Program.—Members of the staff participated in and helped to organize a Medicolegal Day at Harvard University. Students of medical and law schools in the Boston area were invited to attend this meeting and participate in a discussion of medicolegal problems. The program was jointly sponsored by the Student American Medical Association and the Junior Bar Association. The medical and law schools in the Omaha, Neb., area are planning a similar program for their medical and law students this coming spring.

Proceedings Before Federal Communications Commission.—In October the Department prepared and filed a brief in three Federal Communications Commission proceedings requesting that additional radio communication channels be made available to physicians for (1) day-to-day use to receive and answer emergency calls; (2) undergraduate and postgraduate medical training; and (3) use in a disaster or medical emergency. The Department has also assisted in staffing the Radio Communications Committee.

Medical Professional Liability.—The Department continued its study of medical professional liability. At its request a Joint Committee was established by the American Medical Association and the American Hospital Association in an effort to study in-hospital medical professional liability problems and to devise a workable prevention program.

All necessary preliminary work has been completed for an opinion survey of attorneys concerning this subject. A questionnaire has been devised and perfected on the basis of personal interviews with numerous attorneys located in various parts of the United States.

Medicolegal Abstracts

A continuing project of the Law Department has been the preparation of abstracts of court decisions in the medicolegal field for publication in The Journal. The preparation of Volume VI of the permanent bound volumes of abstracted cases has been initiated. References to a few of the cases abstracted and published during the period covered by this report are given below.

Licensure.—The Court of Appeals of Kentucky (Bandeen v. Howard, 299 S. W. (2) 249) upheld the revocation of an osteopath's license on the grounds that he used medicines of doubtful value and made unjustified promises of cure. It was shown that he had utilized "Koch Shots" for cancer treatments. The Court of Civil Appeals of Texas (Wilson v. State Board of Naturopathic Examiners, 298 S. W. (2) 946) upheld the constitutionality of the Texas Naturopathic Act. Both the District Court of Appeal of California (Furnish v. Board of Medical Examiners, 308 P (2) 924) and the Supreme Court of Washington (In re Kindischi, 319 P (2) 824) upheld the revocation of a license to practice medicine for violation of the income tax laws on the ground that such violations involved moral turpitude.

Medical Professional Liability.—Leaving a foreign body in a patient's abdomen is usually sufficient to raise an inference of negligence under the doctrine of res ipsa loquitur. The Supreme Court of California, however (Leonard v. Watsonville Community Hospital, 305 P. (2) 36) held that this inference could be dispelled by the testimony of the defendants given as adverse witnesses in response to the plaintiff's subpoena. The Court of Civil Appeals of Texas (Sims v. Auringer, 301 S. W. (2) 286) held that the execution of a release to the person causing an automobile accident also operated as a release of a physician charged with malpractice in the care of the injuries caused by the accident. The Court of Appeals of Georgia (Robinson v. Campbell, 97 S. E. (2) 544) held that a physician is not liable for injuries to a patient with defective eyesight who is hurt trying to climb out of an examination chair unassisted and in an unfamiliar office. The Supreme Court of California (Salgo v. Leland Stanford Jr. University Board of Trustees, et al, 317 P. (2) 170) held that aortography and its results, because it is a relatively new diagnostic procedure, is not a matter of common knowledge among laymen and it cannot be said that it is a matter of common knowledge that injury results only where there has been negligence in its use. Since it is a matter outside the realm of the layman's experience, it cannot be the basis for the application of the doctrine of res ipsa loquitur.

Consent.—The Supreme Court of Oklahoma (In re Kyle's Autopsy, 309 P. (2) 1070) refused to uphold an autopsy permission given by the sisters of the decedent when the surviving spouse refused such permission. The Supreme Court of Florida (Stauf v. Holden, 94 So. (2) 361) held that a trial court should not have charged the jury that "In a case against a physician for malpractice, the professional character and reputation of the physician is the most important matter at stake, and hence he should not be condemned by evidence that does not point to his negligence." The United States Court of Appeals for the Fifth Circuit (Lester v. Aetna Casualty and Surety Company, 240 F (2) 676) held that the consent of a wife to electroshock treatments for her husband was sufficient where it appeared that the husband's condition was such that it would be unwise and unsafe to require him to undergo the strain of discussing and considering the possible hazards involved in such treatments.

Hospital Liability.—The Supreme Court of Iowa (Wittmer v. Letts, 80 N. W. (2) 561) held that the operation of a county hospital is a proprietary function, at least so far as a pay patient is concerned, and should be considered in the same light as a private hospital which is liable in tort for injuries to pay patients injured through the negligence of its employees. The Supreme Court of Nevada (Hughey v. Washoe County, 306 P (2) 1115) also upheld that liability of a county hospital. The Court of Appeals of Tennessee, however (McMahon v. Baroness Erlanger Hospital, 306 S. W. (2) 41), held that the rule of governmental immunity protects a governmental hospital from suit for damages because of the negligent acts of its employees.

The Court of Appeals of Tennessee (Rural Education Association v. Bush, 298 S. W. (2) 761) held that a hospital was liable for the negligence of a nurse who, through an inadequate sponge count, permitted the leaving of a sponge in a patient's body during surgery. The Court held the counting of sponges was not a medical act. In considering whether or not a hospital should be liable for the negligent acts of its nurses, the Court of Appeals of New York (Bing v. Thunig, 143 N. E. (2) 3) held that the test should be "Was the person who committed the negligent injury-producing act one of its employees and, if he was, was he acting within the scope of his employment?"

Privileged and Confidential Communications.—The Supreme Judicial Court of Maine (Dunbar v. Greenlaw, 128 A. (2) 218) held that a physician's certificate of insanity in a detention hearing is privileged and cannot be the basis for a libel action. The Court of Appeals of New York (People v. Decina, 138 N. E. (2) 799) held that the presence of a police guard at the hospital door who was able to see and hear all that took place between the patient and his physician did not destroy the physician-patient privilege created by the New York law. The physician should not have been permitted to testify.

The Supreme Court of Minnesota (Nelson v. Ackermann, 83 N. W. (2) 500) held that when a physician-patient privilege is asserted by a party to an action seeking recovery for personal injuries and the nature and extent of the injuries are involved, it is not error to permit fair comment to the jury by the adverse party on his inability to examine such attending physician concerning his examination and treatment of the patient.

Miscellaneous.—The Supreme Court of Washington (Young v. Liddington, 309 P (2) 761) held that a hospital record containing a medical opinion as to causation, which is not the result of an observed act, condition, or event, is not admissible in evidence.

The Supreme Court of Minnesota (Maetzold v. Walgreen Company, 83 N. W. (2) 233) held that the privileged communications statute of that state did not disqualify or preclude an attending physician from giving expert medical testimony based on a hypothetical question which excludes all knowledge or information gained by the doctor in examining or treating the patient.

The Supreme Court of North Carolina (Sherin v. Lloyd, 98 S. E. (2) 508) held that in an action for damages, resulting from negligent breach of duty, the statute of limitations begins to run from the time the wrongful act or omission complained of was committed without regard to the time when the harmful consequences are discovered. The United States Court of Appeals for the sixth circuit (Merck and Company v. Kidd, 242 F (2) 592) held that the pharmaceutical company which prepared dried blood plasma is not liable to a person who acquires homologous serum jaundice following the use of the plasma. The presence of the hepatitis virus in the plasma does not render it "filthy" under the Food and Drug Act, nor does it constitute negligence per se.

The Supreme Court of California (People v. Duroncelay, 312 P (2) 690) held that it was not an unreasonable search and seizure to extract blood for testing purposes, even without consent, when the extraction is made in a medically approved manner and incident to the lawful arrest of one who is reasonably believed to have violated the law.

The United States Court of Appeals for the eighth circuit (Rigall v. Washington County Medical Society, et al, 249 F (2) 266) held that the practice of medicine in the state of Arkansas did not constitute trade or commerce within the meaning of the Sherman Act.

COMMITTEE ON MEDICOLEGAL PROBLEMS

This report covers the activities of the *Committee on* Medicolegal Problems for the period from July 1, 1957, to June 30, 1958. During this period, the Committee held two meetings at which reports were received from the following subcommittees: Professional Liability, Chemical Tests for Intoxication, Forensic Pathology, and Forensic Psychiatry.

During the year Dr. Manfred S. Guttmacher of Baltimore, was appointed by the Board of Trustees to replace Dr. Henry A. Davidson of New Jersey.

Medical Professional Liability

The Subcommittee on Medical Professional Liability continued under the Chairmanship of Dr. Joseph F. Sadusk with the substitution of Dr. William M. Nebeker of Salt Lake City to replace Dr. C. G. Heyd of New York as a member.

The group had a meeting in Chicago on March 14, 1958, to work out the final details for a medicolegal program on the subject of medical professional liability which was presented as part of the scientific program of the American Medical Association at the annual meeting in June, 1958. The session was conducted on June 24, at which time the following program was presented.

Standard Provisions of Professional
Liability Insurance Policies
Howard Hassard, *San Francisco*
General Malpractice Insurance Problems
Joseph Linder, New York
Expert Advisory and Witness Panels
Joseph F. Sadusk Jr., Oakland, Calif.
National Medical Professional Liability Trends
C. Joseph Stetler, Chicago

The subcommittee also continued to work with the Law Department in its survey of insuring companies and the legal profession in an effort to develop the proper criteria on which to base a sound and workable claims-prevention program.

Chemical Tests for Intoxication

The Committee with the cooperation of the Law Department continued the presentation at medical and medicolegal meetings of its mock trial demonstration illustrating the introduction of chemical test results in a drunk driving case.

Articles which will comprise the chapters of the manual on Chemical Tests for Intoxication to be published by the Committee are appearing in The Journal of the American Medical Association. It is contemplated that the manual will be completed and distributed in the near future.

During the year the Committee prepared and had published in The Journal two editorials dealing with chemical tests. The first reviewed the bases for the recommendations of the Committee concerning presumptive levels of alcohol content in the blood for chemical test statute purposes. The other outlined the position adopted by the Board of Trustees on the recommendation of the Committee endorsing uniform state legislation patterned after the "implied consent" laws in effect in several states. These laws provide for a presumption to the effect that in applying for and receiving a driver's license a motorist impliedly consents to the taking of a chemical test, if and when arrested for driving while intoxicated.

Medicolegal Film Project

The Committee in cooperation with the Law Department assisted in the preparation of the script and advised in the production of a medicolegal film dealing with traumatic neurosis entitled "The Man Who Didn't Walk." This film was previewed at the Association's annual meeting in San Francisco in June. It was the third in a series of six to be prepared jointly by the American Medical Association and the American Bar Association with the financial assistance of the Wm. S. Merrell Company of Cincinnati.

Coroner-Medical Examiner System

The Committee continued its work during the year in support of the Model Post-Mortem Examinations Act as approved by the National Conference of Commissioners on Uniform State Laws. On Dec. 21, 1957, the Committee published an editorial in The Journal reviewing the progress of the model law during the preceding year.

Distribution of Pamphlets

The Committee continued the distribution of several leaflets and pamphlets by its subcommittees. During this period, 15,050 copies of a leaflet entitled "Test Your A. Q. (Alcohol Quotient)—20 Questions on Alcohol" were distributed. The Committee also continued its cooperative arrangement with the medical schools and distributed approximately 2,400 copies of the pamphlet entitled "Malpractice and the Physician" to graduating medical students. Three hundred requests were filled for the pamphlet "Medicolegal Aspects of Blood Transfusions" and the 1952 report of the Committee dealing with the "Medicolegal Applications of Blood Grouping Tests."

Exhibits on Medical Professional Liability and Chemical Tests for Intoxication

The Committee assisted in the presentation and explanation of the exhibits on chemical tests for intoxication and medical professional liability. These exhibits were shown on 22 occasions.

COMMITTEE ON LEGISLATION

This report covers the period from Sept. 1, 1957, to Aug. 31, 1958. It is necessary to include the months of July and August, 1958, in order to cover the complete activities of the Second Session of the 85th Congress which adjourned on Aug. 24, 1958.

During this period there have been no changes in the composition of the Committee on Legislation. The Committee is presently constituted as follows:

George M. Fister, M.D., *Chairman*
McKinnie L. Phelps, M.D., *Vice Chairman*
C. Byron Blaisdell, M.D.
R. B. Chrisman, Jr., M.D.
Frank C. Coleman, M.D.
Harlan English, M.D.
Frank J. Holroyd, M.D.
J. Lafe Ludwig, M.D.
John E. McDonald, M.D.
D. Olan Meeker, M.D.
George E. Twente, M.D.
Mr. Warren E. Whyte, *Executive Secretary*

During this period the Committee met on four occasions; Jan. 11, 1958, in Chicago; March 29, 1958, in Washington, D. C.; and in an informal meeting of those members present at the annual session of the Association in San Francisco in June, 1958. The Committee had previously met on Aug. 24, 1957, in Chicago. All important legislation of medical interest introduced in the Second Session of the 85th Congress was considered, Association legislative policies and activities were reviewed, and appropriate recommendations were submitted to the Board of Trustees. At the meeting on March 29, the Committee voted to hold its future meetings in Washington, D. C., when Congress is in session, so as to give the members an opportunity to visit their senators and representatives.

Second Session, 85th Congress

Although a final tabulation has not been made, approximately 700 bills of a medical nature or of direct interest to the medical profession were introduced in the 85th Congress; 361 were introduced in the First Session and approximately 340 in the Second Session. The major legislative measures were considered by the Committee on Legislation and recommendations as to the positions of the Association were made to the Board of Trustees.

The number of medical bills introduced in the 85th Congress was an increase of approximately 23% over the 84th Congress, in which 571 bills were introduced. The number in the 84th Congress was in turn a 40% increase over the total in the 83rd Congress.

During the 85th Congress the American Medical Association testified or sent formal statements on 28 important bills. In 19 instances the Association was supporting the legislation or some principle involved. On six occasions the Association was in opposition to the legislation and on four occasions the testimony was solely informational.

The 85th Congress enacted 15 bills of a medical nature. These have either become law or are awaiting the President's signature at the time of this report. Only one of these measures was opposed by the Association. This was H. R. 11414 which provided for annual federal grants of one million dollars to schools of public health. This bill was subsequently amended in the Senate so as to restrict somewhat the use to which these grants could be put. Seven of the bills enacted were actively supported or endorsed by the American Medical Association.

The Forand Bill

Undoubtedly the most important legislation with which the Committee dealt during the period covered by this report was the Forand Bill, H. R. 9467. This measure proposed an amendment to Title II of the Social Security Act so as to provide hospital, surgical, dental and nursing home benefits for the more than twelve million beneficiaries of the Old Age and Survivors Insurance program. It was strenuously opposed at all levels of organized medicine and by the majority of other groups in the health field. At the adjournment of the 85th Congress no action had been taken on the medical aspects of the Forand Bill other than inclusion in the general hearings on Social Security of the Ways and Means Committee of the House of Representatives.

When the Committee on Legislation was informed at its meeting on Aug. 24, 1957, that the Forand Bill was about to be introduced, it recommended to the Board of Trustees that a special committee be set up to study the background of this legislation and to prepare the necessary material and information to be used in opposing this legislation and in testifying before Congress. Dr. Fister was appointed as the Chairman of this committee, later named the Task Force on Social Security Hospitalization Benefits.

Due to the seriousness of the Forand type legislation and its clear-cut threat to the medical profession, the Association established a full-time staff task force to work on this campaign. This group met with the Committee on Legislation at its meetings on Jan. 11 and March 29. The plans and strategy of this special staff operation were placed before the Committee on Legislation in detail and received the endorsement of the Committee on each occasion.

The members of the Committee on Legislation and the state legislative keymen devoted a great deal of time during the period of this report to the Forand campaign. The overall strategy was to contact effectively the 25 members of the House Ways and Means Committee, to which H. R. 9467 had been referred, and to persuade them and other influential Congressional leaders that this legislation was not in the public interest. It was decided that an all-out appeal to the public was not wise at this time as there did not appear to be any public demand for the legislation.

Testimony was given on the Forand Bill by the Association during the Social Security hearings of the Ways and Means Committee in June, 1958. Appearing for the Association were Dr. Leonard W. Larson, Chairman of the Board of Trustees, and Dr. Frank Krusen of Rochester, Minn.

Although this legislation was defeated in the 85th Congress, there can be little doubt that legislation of this type will be the most important legislative measure facing the medical profession and the Committee on Legislation for the next several years. The Committee feels that this type of legislation is a clear-cut and direct threat to the private practice of medicine and it will do everything within its power to insure its defeat.

The Jenkins-Keogh Bills

The Jenkins-Keogh Bills, H. R. 9 and H. R. 10, and similar legislation have been of vital interest to the American Medical Association and the Committee on Legislation since 1951. These measures would provide income tax deferment on amounts put into retirement funds by self-employed persons. After many years of effort, the Jenkins-Keogh Bills came extremely close to enactment in the Second Session of the 85th Congress. H. R. 10 was reported favorably by the House Ways and Means Committee and passed the House of Representatives by an overwhelming voice vote. The bill was referred to the Senate Finance Committee at a very late date and sufficient time did not remain for hearings. However, it was offered as an amendment to a general tax bill from the floor of the Senate. A point of order was raised as to whether it was germane to the measure it sought to amend. It was voted to be not germane by a margin of only 10 votes. It was the general feeling that if Jenkins-Keogh had been brought to a vote in the Senate solely on its merits, it would have passed. The long-standing opposition to Jenkins-Keogh by the Treasury Department and by several congressional leaders appears to be weakening and there is good basis for believing that it will be enacted during the 86th Congress.

Medicare

Another matter of serious concern to the Committee on Legislation during the period of this report were the attempts by certain representatives of the Department of Defense and several congressional leaders to restrict the free choice of civilian physicians and facilities under the Dependents Medical Care Program. The American Medical Association has never endorsed the Medicare program as such but believes that it should be left to the discretion of Congress as to whether such medical care should be given to the dependents of service personnel. The Association has stated, however, that if such a program is to be undertaken, the dependents should have a free choice between military and civilian medical care and health facilities. It is felt that free choice will not only insure a higher standard of medical care for dependents but will also eliminate the need for drafting physicians into the armed forces to care for these dependents.

An attempt was made during the Second Session to restrict this free choice by drastically cutting the appropriation for civilian care of dependents and by placing an absolute ceiling on the amount the Defense Department could spend on such civilian care. The Association and the Committee on Legislation vigorously opposed these restrictions. On two occasions requests for legislative action went out from the members of the Committee to the state legislative keymen and executive secretaries. Congress finally restored the appropriation and eliminated the ceiling on the amount to be spent for civilian care. However, before this was done, the officials of the Department of Defense agreed to restrict the use of civilian physicians and facilities to some extent by administrative regulation.

Other Important Legislative Matters

In addition to those measures mentioned already, the Committee on Legislation dealt with numerous other legislative problems during the period of this report. Included were bills to extend the Hill-Burton construction program and bills to allow loans to be made under this program to those who did not wish to accept grants. The Association testified at the Hill-Burton hearings and made several recommendations for the improvement of the program. Congress finally limited its action to extending the Hill-Burton program and to providing for loans under the program.

During the 85th Congress the Association testified on two occasions concerning veterans legislation. On July 24, 1958, Dr. Russell Roth testified before the House Veterans Affairs Committee concerning the Association's over-all policy on veterans' medical care and our views in general as to the Veterans Administration's medical care program. No definitive action was taken by the 85th Congress in the field of veterans' medical care.

In conjunction with its campaign against Forand-type legislation the Association endorsed several proposals which would serve to help meet the problems of the health care of the aged. On the premise that too little is actually known concerning the problems of the aged, the Association strenuously supported H. R. 9822 which would provide for conferences in each state concerning the health problems of the aged and which would culminate in a White House Conference on Aging in 1961. This bill was enacted. The Association also supported a program of F. H. A. type insured loans for nursing homes. Testimony was presented to both the House and Senate on this subject. The proposal was passed by the Senate but was defeated in the House.

Several bills were introduced in Congress concerning federal grants to medical schools. The Association sent a statement to Congress concerning its position on such grants and representatives of the Association appeared before the House Subcommittee on Health concerning this proposal. No action was taken by Congress on these measures.

Another matter of interest to the Association was the reorganization of the Department of Defense insofar as it would eliminate the position of Assistant Secretary of Defense for Health and Medical Affairs. The Association testified in opposition to the elimination of this important post in our defense establishment. As the reorganization was finally enacted it was left up to the discretion of the Secretary of Defense as to whether one of his assistant secretaries would carry this title. The Association also opposed the elimination of special incentive pay for physicians in the Armed Forces as set up by the Medical Officers Career Incentive Act. The military pay raise legislation originally would have eliminated this special pay for physicians, but as finally enacted this feature of the Career Incentive Act was retained.

State Legislative Keyman Organization

In the latter part of 1956 the Committee on Legislation recommended to the Board of Trustees that a state legislative keyman organization be set up. It was proposed that one physician be appointed in each state as the keyman on national legislative affairs, and that he be formally appointed by the Board of Trustees. The members of the Committee on Legislation were each assigned several states and it was their responsibility to maintain relations with the keymen in their states and to provide information and relay requests for legislative action directly to the keymen. After this proposal was approved by the Board, keymen were nominated and appointed in each state and alternate keymen designated in several states.

During the period covered by this report several requests for legislative action were made through the members of the Committee to the keymen. In addition, the keymen were active in cooperating with the Committee and the staff group throughout the Forand Bill campaign. The response from the physicians throughout the country on Jenkins-Keogh and Medicare was outstanding. The activities of the keymen on the Forand Bill were extensive and had a great deal to do with the Association's success on that legislation during the 85th Congress.

Legislative Activities of the Woman's Auxiliary to the American Medical Association

The program of close cooperation with the Woman's Auxiliary on legislative matters was continued during the period of this report. The Chairman of the Legislative Committee of the Auxiliary, Mrs. Charles L. Goodhand, continued to attend the meetings of the Committee under a policy instituted in February, 1957. The Woman's Auxiliary has completed its own keywoman organization and all requests for legislative action sent to the state legislative keymen were also relayed to the Woman's Auxiliary through their Legislative Committee.

A. M. A. WASHINGTON OFFICE

Relations of Office Staff with Congress and Agencies

Indicative of the expanding interest of Congress in health activities of all sorts, health or medical bills were before 13 of the 19 House committees, and 13 of the 20 Senate committees during the last session. This required the Washington Office to make contacts with staffs and members of 26 committees in addition to covering hearings; in some cases only a few conferences or phone calls sufficed, in others most members of the committee had to be approached repeatedly.

Generally, these contacts were to give staff or committee members a better understanding of the A. M. A. position on certain legislation, but in some instances they were merely to pass on to the committee for its benefit technical health or medical information. Many hours of office time are required to assemble information for Congress, at its request.

In addition to conferences with senators, representatives, and staff people on specific legislation, Washington Office personnel contacted virtually all senators and representatives at their offices or elsewhere in a routine long-range effort to establish and maintain the best possible relationships.

To handle these activities, principal use is made of the four physicians on the Office staff—Director, Acting Director, Associate Director, and Assistant Director, and the staff's three attorneys, all of whom are registered lobbyists.

During the session, the Washington staff covered in person more than 175 man days of open hearings on Capitol Hill and scores of meetings and news conferences in Washington. The objective was to keep in close touch with developments that might affect the A. M. A.'s policies or its legislative operations, and at the same time to obtain prompt, first-hand reports for use in Office publications.

On 18 occasions one or more witnesses testified on behalf of the A. M. A. this year, all of whom were first briefed by the Chicago staff, the Washington Office staff, or both prior to their appearances on Capitol Hill. In addition, 25 letters were sent to committees to apprise them of the A. M. A.'s position on individual bills, and the reasons for the position. In addition, on a number of occasions letters were sent to members of particular committees or to all members of the Senate or the House urging them to consider the A. M. A.'s reasons for favoring or opposing certain bills. In most cases these letters were sent by Dr. F. J. L. Blasingame, A. M. A.'s Executive Vice-President. More than 300 individual letters were sent by the Office to senators and representatives.

Office staff members also worked closely, officially and unofficially, with executives of a number of federal agencies, including the Departments of Defense, Commerce, Health, Education, and Welfare, and Treasury; Army, Navy, Air Force, and Coast Guard; Veterans Administration, Civil Service Commission, Federal Communications Commission, Small Business Administration, Federal Housing Agency, World Health Organization, Civil Aeronautics Board, Civil Aeronautics Administration, Pan American Sanitary Bureau, and Federal Civil Defense Administration.

The Forand Bill

The Office, as did the rest of A. M. A., gave top priority this year to efforts to defeat labor-sponsored legislation to provide, within the framework of Social Security, a compulsory health insurance program for the nation's 14 million aged persons. In addition, the office was active in connection with legislative developments on: the Jenkins-Keogh bill, the Hill-Burton bill, the new Aviation Agency, Medicare, Defense Reorganization, FHA loans for nursing homes, the White House Conference on the Aged, and many other important issues.

Relations with Other Medical and Related Groups

The Washington Office assists in the general efforts of the A. M. A. to establish and maintain cordial working relationships with other groups in the health and welfare fields for the promotion of joint legislative efforts and for improvement of various programs, governmental and private.

To this end Office personnel have been in steady contact with the American Hospital Association, American Association of Retail Druggists, American Dental Association, American Association of Nursing Homes, the U. S. Chamber of Commerce, American Thrift Assembly, several national insurance organizations and many others.

There was particularly close coordination between the Office and the American Thrift Assembly, formed by the A. M. A. and a number of other groups to promote passage of the Keogh retirement bill. The Washington Office Director (and subsequently, the Acting Director) was a member of the ATA executive committee and assisted in shaping ATA policies and administrative practices; a representative of the Office met regularly with ATA officials, and legislative efforts of the two were closely correlated and coordinated.

On invitation, Office personnel visit state medical society meetings and take part in their programs. An increasing amount of time is devoted to answering the requests of state and local societies and acting as their Washington "agents" in dealing with Congress and government agencies. The staff also keeps in close touch with A. M. A. councils that have Washington responsibilities, and Washington personnel frequently attend council and bureau meetings in Chicago and elsewhere. Where possible, the Office assists them in relations with Congress and Federal officials.

Publications

Beginning in September, 1958, the Washington Office will cover Washington for the new bi-weekly AMA News. During 1958 the Office continued its editorial projects, which were:

The AMA Washington Letter, generally held to four pages, a weekly roundup of important medical news in Washington; during the Congressional session the Letter carries a Legislative Boxscore when developments warrant.

The Quarterly Legislative Review, a publication of varied length that summarizes each three-months' Congressional activity.

Legislative Analysis, generally weekly, but published only while Congress is in session, a detailed report on all medical bills introduced. This service is mailed to a limited list, including House of Delegates, Board of Trustees, Committees, state secretaries and other state society officials, auxiliaries and others who are required to follow Washington legislation closely.

Washington News in The Journal, two pages weekly.

The Month in Washington, an article of about 800 words condensing medical news for publication in state and regional journals.

Washington Feature, supplied on a non-schedule basis to The Journal, a more comprehensive treatment of a particular subject than is possible in the weekly news.

GP Washington News, supplied monthly to GP, the journal of the Academy of General Practice.

Federal Medical Legislation, in The Journal, a summary of bills introduced.

New Physician Column, monthly coverage for the journal of the Student American Medical Association.

Special Reports, published when developments warrant, this year on such subjects as the Forand bill, the Jenkins-Keogh bill, the President's budget message. The most widely republished Special Report is an annual summary and short analysis of every health or medical program that can be located in the new appropriations. During the session these Special Reports are a particularly valuable legislative tool, enabling the Office to alert rapidly an active segment of the profession when a situation becomes critical.

A single mailing list is used for the Letter, Special Reports, and Quarterly Legislative Review. "Sudden death" cards are used every two years to hold down the circulation of the above publications to those who have a genuine and continuing interest in Washington developments. At the time the last such check was made (1957) there were 9,500 on the mailing list. Before the one month deadline set for return of the cards, more than 70% of the readers had replied, asking to have their names retained. Now the circulation—names added only on personal request—again has reached 9,500 in less than a year.

A growing and time-consuming responsibility of the Washington Office is to answer inquiries from the news services, newspaper bureaus, television and radio, magazine writers, other associations in the health field, government agencies, students, and other private individuals. Our library, now almost 3,000 volumes, is of help in this work.

DEPARTMENT OF PUBLIC RELATIONS

The period covered by this report is July 1, 1957, to June 30, 1958.

The Department of Public Relations continued and expanded its efforts to give both the public and the medical profession a positive, constructive view of the American Medical Association's policies, actions, and services. The program during this one-year period included numerous special projects, designed to achieve particular objectives, in addition to continuing activities aimed at channeling information to the press, television, radio, general public, state and county medical societies, individual physicians, and other organizations.

Advisory Committee

The Advisory Committee to the Director of Public Relations, which met four times during the year, gave valuable advice concerning medicine's public relations problems, current programs and future projects. Members of the Advisory Committee were:

Mr. Robert D. Potter
Executive Secretary, Medical Society of the County of New York
Mr. John E. Farrell (Sc.D.)
Executive Secretary, Rhode Island Medical Society
Mr. Ralph R. Marshall
Executive Secretary, New Mexico Medical Society
Mr. W. Harold Parham
Assistant Managing Director, Florida Medical Association
Mr. Donald L. Taylor
Executive Secretary, Iowa State Medical Society

Mr. George Saville
Director of Public Relations, Ohio State Medical Association
Mr. Ed Clancy
Director of Public Relations, California Medical Association
Mr. John C. Foster
Executive Secretary, South Dakota State Medical Association
Mr. Robert I. Howard
Executive Secretary, Medical Society of Virginia

Press Relations

Annual Meeting.—Total press room registration at the San Francisco meeting, June 23-27, was 129, including 51 newspaper and news magazine reporters, 8 magazine and free lance writers, 38 reporters from medical, technical, and trade publications, and 32 medical public relations personnel. Press coverage was heavy, and especially wide use was made of stories on Dr. Louis Orr's quackery speech, the use of hypnosis for heart surgery, the A. M. A. policy action on hypnosis, the controversy over the 1960 annual meeting city, and the policy action on the UMWA Welfare and Retirement Fund. For the first time, scheduled press conferences were held on scientific subjects, including space medicine and hypnosis for heart surgery. These 10 conferences were well attended and produced excellent stories.

Clinical Meeting.—The Philadelphia session, Dec. 3-6, was covered by 18 newspaper, news magazine, and wire service reporters and 16 from medical and trade publications. Publicity results were good, especially on the GP of the Year award to Dr. Cecil W. Clark, physician hero of the Louisiana hurricane, and the A. M. A. policy action on water fluoridation, which also received extensive editorial comment.

Special Conferences.—The department provided news coverage for the various annual conferences and special meetings sponsored by the Association, including the National Conference on Physicians and Schools, Mental Health Conference, Medical Civil Defense Conferences, Nutrition in Pregnancy Conference, Industrial Health Conference, Congress on Medical Education and Licensure, Rural Health Conference, and the Committee on Toxicology Conference on Labeling of Hazardous Substances. Press coverage varied according to the size and publicity potentialities of the meetings, but in most cases it included advance news releases, press room services, and special follow-up services.

Special Releases.—Subjects of special stories included Asian influenza, A. M. A. administrative changes, poliomyelitis "Operation Roundup," German claims for a cure of Gehrig disease, opposition to the Forand Bill, Dr. Julian Price's prognostication on the future of medicine, formation of the Joint Council to Improve the Health Care of the Aged, mental health, medical motion pictures, and the model law for the labeling of chemicals.

Continuing Projects.—The press section continued its production and distribution of the Secretary's Letter and the Weekly News Release. The news release was used more frequently to publicize the positive aspects of A. M. A. policies and projects, and greater use was made of material appearing in *Today's Health*. The staff prepared additional stories for use in newspaper medical supplements and answered an average of three or four queries per week from newspaper reporters and other writers. Work began on a health column which will appear this fall in the *Clubwoman*, publication of the General Federation of Women's Clubs.

Magazine Relations

Continuing its liaison with magazine editors and free lance writers, the department received an average of 10 requests per week for assistance in the preparation of medical or health articles. During this period general periodicals with a circulation of over one million published a total of 377 articles on such subjects. In addition, 49 articles appeared in the four major newspaper supplements, *This Week*, *American Weekly*, *Parade*, and *Family Weekly*. A weekly summary of these articles was prepared for publication in The Journal of the American Medical Association. Not one of these articles could be construed as detrimental to the medical profession.

Television and Radio Activities

Television continued to take an increasingly higher proportion of the total departmental effort. This resulted from a greater demand for A. M. A. help and a more aggressive information program to the industry by the department staff and the Physicians Advisory Committee on Television, Radio, and Motion Pictures. Although actual production was held to a minimum, preliminary work was begun for the filming of a 27-minute television program on the subject of food faddism. The department produced and distributed four feature newsclips, including a one-minute extract from Dr. Gundersen's inaugural address which was used on more than 200 TV news programs throughout the United States and viewed by an estimated 15 million people. The department continued its liaison with the National Association of Broadcasters, the three major networks, and free lance television workers; handled TV-radio coverage at special A. M. A. conferences and meetings, and counseled state and county medical societies on local programing.

TV Committee.—The Physicians Advisory Committee on Television, Radio, and Motion Pictures entered its third year of operation. The committee continued to fulfill its responsibility of assuring the accurate dissemination of medical facts and creating a favorable climate of public opinion for the medical profession through material presented via television, radio and motion pictures. In addition to continuing its liaison with the producers of "Dr. Hudson's Secret Journal," "Dr. Christian," and "Frontier Doctor," the committee reviewed and edited many scripts for network programs. This included several for such top-ranking shows as "Climax," "Playhouse 90," "Studio One," "Armstrong Circle Theatre," and "GE Theater." Work was continued with Paul Coates on his "Confidential File" syndicated series and with Art Linkletter's "House Party" program on CBS-TV. Current members of the committee are:

California:
  Eugene F. Hoffman, M.D., Chairman
  Robert W. Gentry, M.D.
  E. Vincent Askey, M.D.
  Dudley M. Cobb, M.D.
  Richard O. Myers, M.D.
  Marcus H. Rabwin, M.D.
  James F. Regan, M.D.
  Charles C. Stehly, M.D.
  Edward T. Tyler, M.D.
New York:
  Gerald D. Dorman, M.D., Co-Chairman
  Henry I. Fineberg, M.D.
  Renato J. Azzari, M.D.

Daily Bulletin of the Air.—As an experimental project, in cooperation with Merck Sharp and Dohme, a series of five television programs and five radio programs was presented over San Francisco stations to report daily news of the Annual Meeting to both physicians and the public. It was planned to edit kinescopes of the television programs into a motion picture for use on educational television and at medical society and hospital staff meetings.

TV Films.—The new film, "Whitehall 4-1500"—designed to show how the A. M. A. serves the American public—was introduced at the 1957 Public Relations Institute in late August. It was then used on 154 TV stations with an estimated audience of 10,088,126. Figures for three other PR films given wide distribution to the public via television were: "Even For One," 384 stations with 24,668,940 viewers; "Operation Herbert," 52 stations with 2,375,200 viewers, and "A Life to Save," 72 stations with 1,916,000 viewers.

Miscellaneous Activities.—Active assistance was given in production of "The American Doctor," presented on "Wide Wide World" over the full NBC-TV network in October, and "Salute to the Medical Profession," broadcast over the NBC Monitor radio network in June. The department provided news and research service to television newsmen and helped arrange appearances of A. M. A. representatives on both local and network shows, an example of the latter being the panel discussion on medical care costs on ABC's "Open Hearing" telecast.

Motion Pictures

Hollywood Films.—The Physicians Advisory Committee on Television, Radio, and Motion Pictures continued to cooperate with producers and directors of the major studios at various stages in the production of full-length motion pictures and short subjects with a medical story line.

PR Films.—Five 16-mm. films, each providing an important message from the medical profession, were distributed to school, church, and club groups with the following results: "Your Doctor," 267,718 people at 5,598 showings; "A Life to Save," 49,366 at 1,057 showings; "Even For One," 82,424 at 1,824 showings; "Operation Herbert," 68,700 at 2,200 showings; and "Whitehall 4-1500," 57,840 at 1,248 showings.

For Students.—The department cooperated with McGraw-Hill Text Films in the preparation of two motion pictures to be used for the instruction of high school and college students—one on the general subject of choosing a doctor and the other on quackery.

Coordination.—The department again coordinated promotion and publicity for medicolegal films and, in addition, helped with the promotion of "Helping Hands for Julie," which was produced by the A. M. A., American Hospital Association, and Squibb.

Literature Distribution

Distribution of pamphlets, leaflets, booklets, brochures, and reprints totalled 4,501,192 during the period of this report. Among the major new public relations pieces were "The Fifth Freedom," a leaflet on free choice of physician; "Do You Like to Make Decisions?" a leaflet emphasizing the importance of the individual physician's judgment, knowledge, and skill; "Health Care for the Aged"; "Which Way?" dealing with the issue of social security coverage for physicians; two brochures on the training of medical secretaries, and pamphlet reprints of "The Health of the Nation" by Dr. Julian Price and "Salute to the Medical Profession" by radio-TV commentator Alex Dreier.

Cooperative Projects.—In cooperation with A. M. A. councils, bureaus, committees, and other departments, staff members assisted in the production and/or distribution of "Protecting the Health of the High School Athlete," a booklet on sports injury clinics; the 1958 Rural Health Conference Digest; the new Principles of Medical Ethics; "Look Before You Leap," a placement bureau leaflet; the Personal Health Information Card (distribution 1,000,000) and the Family Health Record (distribution 1,579,300); and "Near Life, Near Death, Near God," a reprinted Journal article which was sent to more than 50,000 Catholic, Protestant, and Jewish clergymen in all parts of the country.

Special Projects

Medical Education Week.—The department again handled the Association's participation in Medical Education Week which was observed nationally from April 20-26 under the sponsorship of the A. M. A., Student American Medical Association, Woman's Auxiliary to the A. M. A., Association of American Medical Colleges, American Medical Education Foundation, and the National Fund for Medical Education. In addition to its work on the national coordinating committee, the department prepared and distributed four kits—on basic "working materials," community programs, radio and television, and newspaper promotions—at two-week intervals to over 2,000 state and county medical society officers, medical school deans, and public relations directors, S. A. M. A. chapter presidents, and Auxiliary state officers. Medical societies in 32 states, Hawaii, and the Isthmian Canal Zone reported local observances. National promotion also was obtained through science writers; medical, surgical and popular publications; JOURNAL advertisers; health columnists; and national advertisers.

National Science Fair.—For the third year the department also handled the Association's participation in the National Science Fair, held May 7-10 in Flint, Mich., under sponsorship of the Science Clubs of America. A special panel of A. M. A. judges selected four outstanding exhibits in the basic medical sciences, and the two top winners were well-publicized guests at the San Francisco meeting. The four citations at the 1958 Fair, largest ever held, were presented at a special A.M.A. luncheon attended by 820 students, teachers, regional fair sponsors, and medical and press representatives.

Farm-City Week.—The Association again cooperated with some 400 industries and farm, civic, and professional organizations in the third annual observance of Farm-City Week, held Nov. 22-28 with Kiwanis International as coordinating agency. The department's promotional work included communication with each state and county medical society, a suggested program of activities, liaison information, a general news release, and an editorial in THE JOURNAL. The Association also contributed toward the cost of producing advertising mats for distribution to U. S. newspapers.

Asian Influenza.—Cooperating with the Committee on Influenza of the Council on National Defense, the department carried out a program to help alert the public on the danger of an Asian influenza epidemic in the fall of 1957. In addition to the news releases already reported under press relations, informational packets were distributed to state and county medical societies, and promotional material—including a television spot and three radio spots—was made available to broadcast media. This project was carried out in conjunction with the Surgeon General's Office of the U. S. Public Health Service.

Poliomyelitis Inoculation.—Continuing the campaign initiated early in 1957 to stimulate public interest in poliomyelitis vaccination, the department distributed four issues of the "Physicians Against Polio" newsletter to state and county medical societies. Two reminder cards, for physicians to send to patients, were produced in cooperation with the National Foundation for Infantile Paralysis. Sample cards and order blanks were sent with a letter from A. M. A. President Allman to 200,000 physicians. This was followed up by a flyer to state and county societies and an ad in THE JOURNAL. Approximately 17,000 orders were received for 2,450,000 third shot reminders and 3,105,000 series reminders. The department also published a booklet on inoculation clinics, in cooperation with the N. F. I. P., and worked with the Advertising Council on two related poliomyelitis promotional campaigns.

Social Security for Physicians.—In cooperation with the Assistant Executive Vice-President and the Law Department, this department helped carry out a professional education program on the issue of compulsory OASDI coverage of self-employed physicians under the Social Security Act. This work included an editorial, a President's Page, and one of a series of three articles, all in THE JOURNAL; distribution of the "Which Way?" pamphlet to 200,000 physicians, and preparation of a comprehensive kit of informational materials used to fill requests from medical societies and individual physicians.

Forand Bill.—In cooperation with the Task Force set up to coordinate A. M. A. and medical society activities regarding the Forand Bill, this department helped develop the "Facts About the Forand Bill" leaflet and the "Health Care for the Aged" booklet. Separate mailings of these, accompanied by letters of transmittal, were made to 200,000 physicians, residents and interns. Prior to establishment of the special Task Force, this department prepared two speeches, two JOURNAL editorials, and one President's Page on the Forand Bill.

Science Writing Workshops.—To help improve understanding and cooperation between medicine and the reporters who cover scientific news for small and medium-size newspapers, the department conceived, arranged, and promoted the first two science writing workshops sponsored jointly by the A. M. A. and the National Association of Science Writers. Held in Syracuse, N. Y., and Cincinnati, with the active cooperation of state and county medical societies in those areas, each of the meetings drew about 50 reporters, medical society representatives, and persons from allied groups.

Proprietary Medicine Advertising.—At the request of the House of Delegates, the department laid the groundwork for a program to improve "truth and decency" in advertising over-the-counter medical products to the public. A meeting was held with representatives of the American Association of Advertising Agencies, American Association of Newspaper Representatives, American Newspaper Publishers Association, Association of National Advertisers, Columbia Broadcasting System, Magazine Advertising Bureau, Magazine Publishers Association, National Association of Broadcasters, National Better Business Bureau, National Broadcasting Company, and The Proprietary Association. Consensus was that voluntary arrangements should be made to screen questionable advertising of proprietary drugs, and the National Better Business Bureau was suggested as the best central agency for such screening. This department developed a five-point program which was approved by the Board of Trustees and the House of Delegates at the San Francisco meeting. As a result, the A. M. A. has become a subscribing member of the N. B. B. B., and plans are under way for another meeting with interested parties.

Services to State and County Societies

A. M. A. News Notes.—Twelve issues of this monthly newsletter on Association projects and services were distributed to state and county medical society editors, state executive officers and A. M. A. department heads and guides.

PR Doctor.—Six issues, including a special television issue, were distributed to provide state and county societies with practical news and examples of public relations projects. A new feature was initiated: a special one-page insert to be used with corresponding PR Exchange items as supplementary materials for PR in Action kits.

PR Institute.—The fifth annual Public Relations Institute, held Aug. 28-29, attracted approximately 400 representatives of state and county medical societies for discussions of public relations problems and exchanges of how-to-do-it information on such subjects as press relations, grievance committees, legislation, professional liability, and doctor-lawyer cooperation. PR aids were displayed, and at the closing session the participants received special packets containing summaries of all Institute presentations.

PR in Action Kits.—The special television issue of *PR Doctor* was added to the list of PR packets, bringing to 14 the total available on request to state and county societies.

House of Delegates Report.—The roundup story on House of Delegates policy actions was mailed on the final day of the Philadelphia and San Francisco A. M. A. meetings to all delegates, state and county editors and secretaries, A. M. A. officers and trustees, and other interested parties. The mailing list reached a total of 855 out of a run of 900 at the San Francisco meeting.

Counseling.—The department met a large number of requests from state and county societies for advice and/or materials in solving specific public relations problems or developing programs.

Services to Officers and Trustees

In providing assistance to the President, President-Elect, Executive Vice-President, and other Association officers, staff writers assisted in the preparation of 68 speeches, 12 President's Pages for THE JOURNAL, and two special by-line articles. The speeches—covering a wide variety of subjects involving A. M. A. policies, problems, and activities—were heard by an estimated 20,000 persons. Thousands of others read news accounts of the speeches or the full texts reprinted in journals.

Executive Assistant.—Work of the executive assistant assigned to the President and President-Elect also included 30 days of travel covering 14 trips to meetings in 13 states; arrangements for 12 press interviews or conferences; arrangements for 13 television and radio appearances; distribution of advance, press room, and follow-up copies of speeches; assistance on correspondence and itineraries; and editorial assistance on "Allman-Ack," a special booklet printed for the Philadelphia Brotherhood Week meeting in tribute to Dr. David B. Allman.

Presidential Inauguration.—For the sixth year the department handled all writing, arrangements, promotion, and publicity for the presidential inauguration ceremony, which at the 1958 Annual Meeting drew a capacity audience in the Rose and Concert Rooms of San Francisco's Sheraton-Palace Hotel. In addition to Dr. Gunnar Gundersen's installation and inaugural address, the program included choral music by the Oakland Shrine Chanters and presentation of the A. M. A. Distinguished Service Award and two Distinguished Layman's Awards. The department also arranged the President's Reception and Ball, which followed the inaugural ceremony.

General Services

In addition to activities reported in previous categories, this department also: published the *Daily Bulletin* at the A. M. A. meetings in Philadelphia (12,000 copies and 16 pages) and San Francisco (34,500 copies and 50 pages); produced 22,000 copies of the general program for the San Francisco meeting; handled photography and requests for prints at the Philadelphia and San Francisco meetings; carried out an expanded program of liaison with women's organizations, including medical assistants groups, Woman's Auxiliary to the A. M. A., General Federation of Women's Clubs, National Federation of Business and Professional Women's Clubs, and American Association of University Women; assisted the A. M. A. Membership Department and state societies in orientation and membership promotion programs; conducted the guided tour program at A. M. A. Headquarters, which accommodated 353 visitors; prepared the visual presentation for the Board of Trustees on the value of establishing the *AMA News;* sent out 300 packets on socialized medicine; and counseled other Association departments on a wide variety of public relations problems.

Conclusions

The work of the department is constantly expanding, and it also is felt that the public relations program is steadily improving as greater and greater emphasis is placed on positive, constructive activities.

COUNCIL ON MENTAL HEALTH

Since its last annual report the Council on Mental Health has held two Council meetings, November, 1957, and February, 1958. An Executive Committee meeting of the Council was held in April, 1958. The primary interests of the Council for the past year have been the formulation of a final report on the Medical Use of Hypnosis for consideration by the Board of Trustees, study concerned with the possible inadequacies of the Medicare Program, the formation of a Joint Committee between the Council on Mental Health and the Council on Industrial Health, and a strengthening of liason between the Council and the 46 committees on mental health of the state medical associations. This coordinating relationship is in great part carried on through the Annual Conference of Mental Health Representatives of State Medical Associations, which is held in November of each year.

Medical Use of Hypnosis

After a study of approximately two years the Council's *Ad Hoc* Committee on Medical Use of Hypnosis, forming a committee of members as a whole, presented to the Board of Trustees in May, 1958, its final report on the Medical Use of Hypnosis. The Board of Trustees recommended that the report be submitted to the House of Delegates for final action at the next annual meeting of the Association in June, 1958. At this meeting the House of Delegates, on recommendation of the Reference Committee on Hygiene, Public Health, and Industrial Health, approved the Council's report on hypnosis. This report, along with its bibliography, was published in the Sept. 13, 1958, issue of THE JOURNAL of the American Medical Association, page 186, and reprints will be made available to interested persons from Council headquarters in Chicago.

Committee on Alcoholism

The Council's Committee on Alcoholism has held two meetings, September, 1957, and January, 1958. Since the last annual report, the Committee's Manual on Alcoholism, consisting of a series of articles on the medical, physiological, psychiatric, and social aspects of alcoholism, along with guest editorials, in cooperation with the A. M. A. Bureau of Health Education, has been published, and is available to physicians at a nominal fee through the A. M. A. Order Department. In conjunction with the regular committee meetings, the Committee on Alcoholism has established "institutes" on alcoholism. The primary purpose of these "institutes" is to educate the physician, particularly the general practitioner, in the treatment of patients suffering with alcoholism. These "institutes" work on a cooperative basis with the state medical societies and are arranged only on the request of state medical societies in connection with their annual meetings. The first of the "institutes" was given in San Francisco in September, 1957, and the second in Galesburg, Ill., in January, 1958. A third "institute" is being planned with the Colorado State Medical Society for September of this year. The Committee has developed with the A. M. A. Bureau of Exhibits two excellent educational exhibits on alcoholism. The Classified Abstract Archive of the Alcohol Literature, a service for physicians at the Council's headquarters office in Chicago, is still maintained by the Committee.

Narcotic Addiction

Since the Council's Report on Narcotic Addiction was approved at the annual meeting in June, 1957, the Council's headquarters office has distributed approximately 1,500 copies of the report. Most of these reprints go to physicians, lawyers, and interested government agencies.

With the resignation of the former Chairman, Dr. Robert H. Felix, the Committee, under its new Chairman, Dr. Harris Isbell, has undertaken plans to collaborate with the A. M. A. Bureau of Exhibits in the establishment of an exhibit on Narcotic Addiction.

Joint Commission on Mental Illness and Health, Inc.

The Council has continued its active cooperation with the Joint Commission on Mental Illness and Health, Inc., during the past year. At the present time five members of the Council are also members of the Joint Commission, and Dr. Leo H. Bartemeier, Chairman of the Council, continues in his capacity as Chairman of the Board of Trustees of the Joint Commission. Dr. Richard J. Plunkett, Secretary of the Council, continues as Associate Director of the Commission's headquarters staff.

The Joint Commission now has 12 projects and field studies in the mental and emotional illness field actively under way. It has submitted two annual reports and plans to have its final report ready by the Fall of 1959.

The two most recent study projects undertaken by the Joint Commission are a study of the relationship between religion and mental illness, a project supported by the Rockefeller Brothers Fund, and a study of the epidemiology of mental and emotional illness including multiprofessional viewpoints on etiology and considerations related to the over-all ecology of mental illness and problems related to the communicability of mental and emotional illness.

In all of its aspects the work of the Joint Commission continues to be an extension of the interest of the Council and of the Association itself in providing for improvement in the care of mentally and emotionally ill patients.

Fourth Annual Conference of Mental Health Representatives of State Medical Associations

On Nov. 22 and 23 the Council sponsored its Fourth Annual Conference of Mental Health Representatives of State Medical Associations to consider related problems in the field of mental health. There were four discussion groups:

(1) The Role of the General Practitioner in Relation to the Specific Psychiatric Case.
(2) Blue Cross-Blue Shield and Other Voluntary Health Insurance Plans for the Psychiatric Patient.
(3) Relationship of the Psychiatrist in Private Practice to the General Hospital in his Community.
(4) Psychiatric and Related Mental Health Problems in Industry.

The Conference was chaired by Dr. Leo H. Bartemeier, Council Chairman. The guest speakers of the evening of Nov. 22 were Dr. Ernest B. Howard, Assistant Executive Vice-President of the Association and Dr. Frank E. Hartung, Associate Professor, Department of Sociology, Wayne University, Detroit. The Proceedings of the Conference have been published and distributed to all state medical associations and other participating groups. Copies of the Proceedings are available at headquarters office. The Council is now making preparation for its Fifth Annual Conference scheduled for Nov. 21 and 22, 1958, at the Drake Hotel, Chicago. Because of increased participation in the Conferences by state representatives and outside organizations, five topics will be discussed at the Fifth Annual Conference, i. e.:

(1) Emotional Block Versus Brain Damage in the Diagnostic Categories in Mental Retardation or Mental Deficiency in School Children.
(2) Communicability of Mental and Emotional Illness.
(3) Education for Psychiatric Medicine.
(4) The Joint Commission for Mental Illness and Health—Progress and Problems.
(5) Mental Illness and Health in the Aged.

These subjects will continue to be active interests of the Council during the coming year.

Woman's Auxiliary

In July 1957 the Council on Mental Health recommended to the chairmen of all state mental health committees that it would be helpful if the chairmen of the State Mental

Health Committees of the Woman's Auxiliary could sit as permanent guest members at each of the meetings of their state association committees on mental health. Since that time the Council has received a number of replies from these chairmen indicating that they were cooperating in this effort. The Council continues to give supervisory advice to the Woman's Auxiliary in the development of its programs on mental health.

Headquarters

Because of the increasing amount of work since its inception, the Council requested the Board of Trustees to appoint an additional member; and in December, 1957, Dr. Norman Q. Brill of Los Angeles was elected, thereby raising the total number of members to nine, and giving the Council better geographical representation. In the last year the Council has had representation on two committees of the Association, Dr. Walter Baer on the Committee on Rehabilitation and Dr. Hugh Carmichael on the Committee to Study Paramedical Areas in Relation to Medicine.

As in the past years, the Council continues a close liaison with other councils and committees at the Association headquarters. The Council also continues to work closely with many organizations in the field of mental health outside the American Medical Association. Some of these organizations are the American Psychiatric Association, the American Nurses Association, the National Institute for Mental Health, the American Association of Mental Deficiency, the American Bar Association, and the National League for Nursing, and continues actively to support the work of the Joint Commission on Mental Illness and Health.

COUNCIL ON RURAL HEALTH

During the past 13 years the Council on Rural Health has been motivated by certain basic concepts in our over-all philosophy of self-help and the following six guides to our thinking of health problems and their solution are:

1. That each of us is largely responsible for our own health; that through the many decisions we make daily we profoundly affect our physical and mental status.
2. That our inalienable right to life, liberty and the pursuit of happiness is ours *only* if we value it enough to preserve it for ourselves.
3. That everyone has an inherent right to knowledge. But that it is our responsibility to acquire the knowledge needed to accomplish our purpose, be that health maintenance or any other objective.
4. That it is the duty of each of us to be a good citizen and pull our full pound when it comes to promoting and defending the common welfare, our homes, our community, and our country.
5. That we do best when we join with other citizens of good intent and gain the advantages that accrue from organization and team work.
6. That as the world of medicine and the world of agriculture advance through constant change, we all do better for ourselves if we depend upon our own ability and upon our own determination to "Help Ourselves to Better Health."

A signal honor was bestowed on Mrs. Charles W. Sewell, a co-founder of the Council on Rural Health, during the A. M. A. annual session in San Francisco. Mrs. Sewell was cited for her humanitarian service in the field of rural health. The award is given to a distinguished layman who has served to advance the ideals of American medicine and also has contributed notably to the public welfare. She is the first woman to receive the medical organization's citation for distinguished service. Only five persons, including Mrs. Sewell, have received the award since it was established in 1948. The Council takes great pride in this well deserved recognition.

During the past three years the U. S. Department of Agriculture with the assistance of the Department of Health, Education and Welfare, has been conducting a number of pilot projects in some of the economically depressed areas in 31 different states. The purpose is revolutionary in that the activity of federal agencies is advisory, dealing with an organized group of local citizens representing a broad cross section of local opinion and leadership. Within the state the Agricultural Extension Service exerts some leadership through the County Extension personnel. The objective is to pursue all possible promising activities as decided upon by the local group affecting the resources, the health and the social and civil activities of the total population. This is a most promising effort in harmony with local free choice and with responsibility inherent with such freedom. Since health is one of the pursuits to be followed, the Council has pointed out to state and county medical societies this opportunity for leadership in all matters where sound medical practices are concerned. In May these 84 pilot county plans were reviewed at Memphis, Tennessee, at which the Council was represented by the Executive Director and the Chairman. The follow-up on this program comes within the scope of its field activities.

A new activity of the Council was the compilation, printing, and distribution of nine health discussion lessons for the National Grange to use as program material by leaders of state and Pomona Grange groups. Ten thousand of each, with various A. M. A. pamphlets were forwarded to the national office for distribution to state groups.

In October a two-day study conference was held at Purdue University for chairmen and members of state rural health committees which was attended by leaders in rural health from 23 states. This was a training program, a re-statement of the goals for the future and as assessment of achievements up to the present, with special emphasis on the philosophy and aims of the Council. Later a summary of the meeting, together with a 15 point program, was mailed to all chairmen, committee members and executive secretaries of state societies as an aid in carrying out their duties in the rural areas, and as an aid to newly assigned members of the various state committees. As a result of this activity, the House of Delegates, at the Clinical session in Philadelphia, December, 1957, took favorable action requesting the state medical associations to give further support and encouragement to their state rural health committees, and to form a closer liaison with and work with all farm organizations and rural groups.

The 13th National Conference on Rural Health was held in Jackson, Miss., March 6-8, 1958. The theme of the over-all meeting was "As the World Turns." The program was well balanced, ably presented, and enthusiastically received by the entire audience. The Council would like to pay particular tribute to the Mississippi State Medical Society for the gracious hospitality extended to the entire group during our National Conference last March. They were keenly interested at all times in every phase of our planning and cooperated in every way to make this meeting most successful. The entire membership as well as the staff extended every courtesy, for which the Council is most grateful.

During the year the Chairman has been privileged to attend rural health meetings in many areas of the country. They were well attended by many people of widely different interests, brought together by the common denominator of citizenship and a general interest in better health. The Council has been encouraged by the fine enthusiasm and enduring interest of lay leaders in this over-all problem. They seem especially encouraged and stimulated by the efforts being promoted by the medical profession through the A. M. A. In no other way could the participation of so many able lay leaders have been obtained. We have been impressed by the universal demand for the best in medical care. There is no market for known second-rate services. This is true on all levels of society. Our doctors have the same schooling and training wherever they locate and they all have the same opportunity to accept the challenges of the city or the greater challenge of the town. There are still many opportunities to locate and practice in places where one can be reasonably busy doctoring people who need him and want him. This is the essence of a satisfactory professional life to be found in greatest abundance among the sturdy, independent, self-respecting people who live in rural America. The Council has deeply appreciated the good advice and assistance accorded it by its five advisory groups. The American Farm Bureau Federation, The National Grange, The Association of Land Grant Colleges, Committee on Policy and Extension, and the Farm Foundation of Chicago have each contributed from their experience and wisdom to the shaping of a successful year. This year the Council has added to its advisory membership. The American Veterinary Medical Association has been invited to join us and give us the benefit of its experience in the rural health field.

The Executive Director spent only the first six months of this year in activities of the Council on Rural Health. The last half of the year he was engaged largely in over-all activities of the A. M. A. in the legislative field.

During the time he spent on rural health he visited 18 states in the further development of the longtime program of the Council. Six of these states were visited twice, first, to gather ideas from the leaders of organizations for the program of the National Conference on Rural Health and, second, as a follow-up in locating talent for the program.

The Executive Director, along with the chairman, spent a great deal of time in developing the program for the Second Conference of State Chairmen of Rural Health Committees which was held at Purdue University on Oct. 4-5, 1957.

It was during the first six months of the year that the farm magazine health column series was developed. This is the second year for this activity and, though it consumes a great deal of time in corresponding with individual physicians and with the editor who rewrites and adapts the original articles, this is considered one of the most rewarding activities of the whole program.

The Executive Director attended such important national meetings as the American Country Life Association, the National Association of County Agricultural Agents, the American Association of Land Grant Colleges and Universities, the American Farm Bureau Federation, the National Grange, and other similar organizations.

A number of addresses were made before state and regional groups and time was also spent in counseling, advising, and promoting rural health organizations.

During the second half of the year, while the Executive Director was traveling into the states in connection with legislation, contacts were made with rural health leaders and the program promoted as much as possible. A great deal of work has also been carried on by correspondence.

As in other years, the activities of the Council office have been concerned with routine duties which consist of acting as an information source and clearing house for various organizations in rural health areas. It continues to maintain close relationships with state medical societies and state committees concerning rural health matters; also carries out assignments delegated by the chairman and the members of the Council, which include contacts with farm groups and trips to various parts of the country in connection with selection of sites for our national conferences. The office also maintains a current roster of all state committee members and a mailing list of approximately 5,000. In carrying out plans for our 13th national conference a pre-conference flier and a conference program were designed, printed and distributed, as well as approximately 5,000 invitations. A digest covering our 13th national conference was compiled, printed, and approximately 2,000 copies have been distributed. Three executive sessions and two full Council meetings have been held, as well as the annual advisory meeting. The activities also include mimeographing and mailing of specialized material of interest to rural people, mimeographing and distribution of the monthly farm articles, etc.

The two pamphlets "Check and Know" and "Member of the Family—Your Doctor" continue in demand and approximately 5,000 copies of each have been distributed during the year; also, a large number of complete kits of material on rural health have been furnished on request.

The Council continues to send out in response to a vast number of requests the popular booklet "Medical Scholarship and Loan Programs." Our mailing also includes tearsheets, reprints, booklets, etc., supplied by the various departments of A. M. A.

The "Personal Health Information" cards, originally developed by the Council at the special request of the Farm Bureau Federation, have proved to be a most successful project. In cooperation with the Public Relations Department last year, one million of these Health Information cards have been given wide distribution throughout the country. In addition, 50,000 copies were distributed directly through the Council. This distribution does not include the printing of the wallet sized card which has been carried on by the American Farm Bureau Federation as its own special project for which it has assumed the expense of printing. The joint project carried on between the Public Relations department and the Council with the "Family Health Record" booklets has also been a most worthwhile endeavor, and approximately 91,000 copies have been distributed during the past year.

Six hundred fifty pamphlets on organic phosphate insecticide poisoning, with accompanying letter of explanation, were sent to all state rural health committees and directors of Extension services of the State Agricultural Colleges.

DIVISION OF COUNCILS OF THERAPY AND RESEARCH

The Division consists of the headquarters staff of the Council on Drugs, Council on Foods and Nutrition, Council on Medical Physics, Committee on Research, Committee on Toxicology, Committee on Pesticides, Committee on Cosmetics, Bureau of Investigation, and the A. M. A. Chemical Laboratory.

These departments have constantly endeavored to expand their activities and improve their programs of operation with the view of rendering a better service to the medical profession and also the general public. The development of new drugs and other new potential aids for the diagnosis, prevention, and treatment of disease has continued to proceed with constantly increasing rapidity. In order to meet this challenge the evaluation of data or evidence and the publication of concise and authoritative scientific reports has been increased significantly.

Members of the staff have answered numerous inquiries relating to drug therapy, nutrition, toxicology, clinical research, medical devices, and cosmetics. Not infrequently they have also been requested by other departments at headquarters to render an opinion regarding the scientific soundness of a proposed exhibit, article for publication, or medical motion picture.

The Director of the Division has continued to serve as Chairman of the Advertising Committee for the scientific publications of the A. M. A. In this capacity he has had the responsibility of making certain that all proposed advertising copy for these publications is screened in order to insure compliance with the A. M. A. principles governing advertising. The task of determining the eligibility of products for advertising has often been tedious and difficult, particularly when the findings of various clinical studies were in conflict. Products that were of unestablished therapeutic value have been ruled ineligible. Likewise, irrational or "shotgun" mixtures of drugs have been rejected for advertising. A very considerable amount of time has been spent in making deletions or appropriate revisions of proposed claims or statements which were judged to be in violation of our governing principles. Every effort has been made during the past year to continue the established policy of being as fair and consistent as possible in screening all proposed advertising copy and of maintaining our standards at as high a level as is both possible and practicable.

COUNCIL ON DRUGS

The activities of the Council for the period July 1, 1957, to June 30, 1958, were focused chiefly on its established function of providing unbiased information and timely reports on drugs and drug therapy as a scientific service to the medical profession. The Council's over-all program for fulfilling this obligation has comprised the following three broad areas of action: (1) evaluation of evidence and description of individual new drugs, including additional forms and uses of previously considered drugs; (2) reviews of drug therapy in specific diseases or clinical conditions; (3) consideration of special therapeutic problems involving individual or classes of drugs.

The administration and implementation of the Council's program entails the preparation and publication at headquarters of a biweekly confidential Bulletin which is sent to all members as a means of conducting all transactions and recording the proceedings of meetings. Additional special Bulletins are issued when necessary for action on urgent matters. In addition, the headquarters staff serves all other headquarters departments as a source of information on drugs, provides replies to numerous outside inquiries concerning therapy, and participates in the scientific activities and meetings of outside organizations which pertain to this field.

Evaluation of Individual Drugs

The evaluation of available evidence for individual new drugs, together with proposed new uses of previously described drugs, and the preparation of statements concerning them for publication in The Journal of the American Medical Association and in the Council's annual publication, New and Nonofficial Drugs (N. N. D.), continues to be the major and most important activity of the Council and its staff. It embraces the Council's fundamental program for evaluation of drugs which was instituted in 1955 to replace the former seal-acceptance procedure. During the period of this report the following operations basic to this activity were accomplished: (*a*) consideration and adoption of nonproprietary names for 35 new compounds (prior to their evaluation and/or introduction for clinical use) through negotiations with American commercial sources and in cooperation with the U. S. Pharmacopeia, National Formulary, National Institutes of Health (in the case of biologics and addicting drugs), World Health Organization and British Pharmocopeia Commission; (*b*) evaluation of scientific data and reports of investigations (usually furnished through the cooperation of manufacturers) by direct contact with more than 150 expert outside consultants, and the members of the Council; (*c*) preparation by the staff, together with review and authorization for publication by the Council as a whole, of new monographs for 45 previously unevaluated drugs, including additional salts and esters; (*d*) preparation and similar consideration for publication of 5 supplemental statements on additional uses or routes of administration of previously evaluated drugs; (*e*) transmission of statements for publication to all cooperating manufacturers, including consideration of their valid criticisms, prior to release of statements for inclusion in The Journal and in N. N. D.; (*f*) revision of New and Nonofficial Drugs, 1958, together with appropriate chapter and sectional changes which resulted from the incorporation of 48 new monographs and the omission of 13 monographs on drugs no longer marketed or sufficiently well-known to make their further description unnecessary.

In conjunction with the publication of monographs, the Council instituted in The Journal and in N. N. D. 1958, the listing, in appropriate generic terms, of available pharmaceutical dosage forms and sizes or strengths of individual drugs, as an aid to prescribing. This additional feature of Council monographs was announced and simultaneously implemented as a change in operation in The Journal of Sept. 13, 1958. The Council also adopted and implemented a uniform system for expressing metric dosage and dosage sizes so as to state all amounts of 1 gram (Gm.) or more in terms of that unit, and all lesser amounts in terms of the milligram (mg.), except where the microgram (mcg.) has been established for highly active drugs such as cyanocobalamin (vitamin B_{12}).

At the close of the current period, a total of 29 new drugs were under various stages of evaluation with a view to publication of monographs on their actions, uses and dosage.

Reviews of Drug Therapy

Sponsorship of a continuing series of reports on the status of therapy in specific diseases or clinical conditions, prepared by selected outside authorities, constituted the second most intensive activity of the Council. Its continuation was considered essential to supplement the Council's statements on individual drugs. The preparation of reports on 25 additional topics was authorized for future publication over a two year period. A total of 9 reports of this kind were published during the year and included such important medical subjects as rheumatoid arthritis, infectious hepatitis, upper respiratory infections, and anemias. The Council also published a special report of the 1957 Veterans Administration–Armed Forces Conference on Chemotherapy of Tuberculosis, reviewing recent developments in the treatment of that disease.

Special Therapeutic Problems

Several special problems involving drugs and/or therapy were considered during the period covered by this report. The Council published 4 reports on the following varied subjects: dosage of vitamin K in hemorrhagic disease of the newborn; potential hazards of meprobamate; psychotherapeutic drugs; methods for identification of hospital solutions and preparations of drugs. The latter subject was considered in connection with the employment of short-cuts such as color for distinguishing certain types of hospital solutions. Such methods were considered likely to increase rather than decrease confusion in identifying preparations of all kinds and accordingly were discouraged in favor of adequate and carefully read labeling. The Council jointly sponsored, with the Council on Foods and Nutrition, publication of a report on flavonoids in human nutrition and medicine. At the request of a special Committee on Influenza, the Council also adopted a report on antibiotics and influenza which was published with reference to the outbreak of an Asian strain of this infection.

The Council reconsidered jointly, with the Council on Foods and Nutrition, the highly controversial subject of fluoridation of public water supplies as a method of prophylaxis for dental caries, a matter referred to the Councils for further study and a report of findings for consideration at the December 1957 Clinical Meeting of the Association in Philadelphia. The Councils held a special joint meeting at A. M. A. headquarters in Chicago on Aug. 7, 1957, to hear the views of two prominent opponents and two proponents of fluoridation. On the basis of available information and evidence, the Councils subsequently transmitted a report confirming the safety and efficacy of the procedure which was adopted by the A. M. A. House of Delegates (Proceedings of the Philadelphia Meeting, *J. A. M. A.* 166:1616 [March 29] 1958).

At the request of a special Committee on Amphetamines in Sports, the Council sought to obtain from several authorities information concerning the effect of such stimulants on the physical performance of trained and untrained athletes. The Council transmitted the data obtained for consideration by the committee.

Membership

Through nominations submitted for consideration by the Board of Trustees, Dr. Arthur C. Curtis, Dr. James P. Leake, and Dr. Torald Sollmann were re-elected to membership on the Council for additional five-year terms extending through 1962. By similar action, Dr. Louis S. Goodman was elected to fill the unexpired term, extending through 1959, created by the resignation of Dr. Joseph Stokes Jr.

Annual Meeting

The annual meeting of the Council was held at A. M. A. headquarters in Chicago on Nov. 1 and 2, 1957. Dr. Torald Sollmann and Dr. James P. Leake were re-elected Chairman and Vice-Chairman respectively. The closing date for annual editions of N. N. D. was advanced from Oct. 1 to Aug. 1 to make the book available in January of each year. The Council voted to discontinue its sponsorship of two former book publications, Glandular Physiology and Therapy, and Fundamentals of Anesthesia, because of their limited sale and the availability of other adequate publications in these fields. The Council also dissolved its advisory committees on contraceptives, dermatological vehicles, and radioactive isotopes to permit wider use of consultants as provided under its revised program of operation for evaluation of drugs. This was implemented with the understanding that members of these former committees could be invited to serve as individual consultants if the need for their opinions in these fields should arise. The Council authorized the selection of two full-time practitioners of general medicine to attend its next annual meeting as a means for gaining a closer perspective of the problems of the average physician.

The Council voted to circulate for comment by American drug and pharmaceutical manufacturers the principles promulgated by the World Health Organization for devising international names for drugs, with a view to their adoption and publication on an advisory basis, as a guide for achieving greater uniformity in the development of nomenclature for new compounds. On the basis of generally favorable replies received, including suggestions for improvement, the Council subsequently adopted and transmitted a proposed revision of the principles for consideration by the international organization.

Sponsorship of Symposiums on Drug Therapy

The Council also considered at its annual meeting and subsequently undertook sponsorship of an A. M. A. symposium and panel discussion on the Use and Abuse of Adrenal Steroids in cooperation with the George Washington University School of Medicine and the Medical Society of the District of Columbia. The program for the meeting, planned by a committee of the Council, was scheduled for presentation on Sept. 25, 1958. It was visualized that a meeting of this kind could provide physicians with additional practical clinical information on timely therapeutic subjects and attract wider attention to the work of the Council as an Association-supported scientific service to the medical profession.

COUNCIL ON FOODS AND NUTRITION

Nutrition education and information are the major interests of the Council on Foods and Nutrition. In the past year, increased emphasis has been placed on its program of supplying information designed to add to the armamentarium of the practicing physician. Sponsorship of symposiums, exhibits, articles in The Journal, publication of monographs, and review of institutional advertisements and other special educational materials have for many years constituted the Council's information program and, having proved this efficacy, the Council has worked to strengthen this program. Several new activities have been introduced this year including fellowships to medical students for research in clinical nutrition.

The Council carried out cooperative programs with a number of agencies during the year. One of the most interesting of these activities was in cooperation wi the Council on Drugs on the preparation of a report on the safety and effectiveness of the fluoridation of public water supplies.

The special interest in the possible relation of diet to atherosclerosis and cardiovascular disease that has been so prominent during the past 18 months has done much to focus attention on the general role of diet in the maintenance of health and on the place of nutrition in clinical medicine. The Council through its symposiums and special articles on this subject has been one of the leaders representing the medical profession in stimulating research while at the same time cautioning the public and industries to maintain a rational approach and reasonable attitude about dietary changes hopefully designed as safeguards against the onset of atherosclerosis.

Council Request Articles

The articles that are published in the Council column of The Journal are requested specially and reviewed by the Council. Council reports and statements are, of course, prepared by the Council itself. Judging by the reprint requests and citations in the scientific and the lay press, the articles are proving to be a most worthwhile activity.

Twenty-five request articles have been published in The Journal since June 30, 1957. In addition, 15 others have been received and are being processed for Council review before publication. Forty-two additional articles are being prepared at the request of the Publications Committee of the Council. Many of the articles are co-sponsored by the Nutrition Foundation as part of a cooperative program in nutrition education.

These articles represent a direct contribution to The Journal of approximately 110 pages. Nine articles in a series of 12 on "Modern Nutrition," are being published in *Today's Health* under the co-sponsorship of the Council and the Bureau of Health Education.

Three special monographs were published during the year, each made up of the articles from the Council-sponsored symposiums. Additional material that was not published when the collection of papers appeared in The Journal was included in two of the monographs. The titles are (1) "Some Inorganic Elements in Human Nutrition," (2) "Relation of Proteins and Amino Acids to Nutritional Health," and (3) "Fats in Human Nutrition—with Particular Attention to Fats, Cholesterol, and Atherosclerosis."

Council Statements

The 1957 report mentioned that the Council had completed and would soon publish a statement on multivitamin preparations as dietary supplements and as therapeutic agents. However, the statement was rewritten in the middle of 1957 and then submitted to the medical directors of various pharmaceutical companies for review. As a result of this review, the statement was again revised in October, 1957, and submitted for publication in January, 1958. On instruction from the Board of Trustees, and at the request of an *Ad Hoc* Committee of the American Drug Manufacturers Association, the statement was recalled from publication until a meeting could be arranged between the *Ad Hoc* Committee and the Council. At the meeting, which was held in New York City on April 11, 1958, the Council statement was thoroughly discussed in a way that appeared to be mutually satisfying to all concerned. The vitamin statement was extensively revised and finally adopted by the Council late in June, 1958.

Symposiums

The Council annually sponsors a symposium on some aspect of clinical nutrition. These symposiums, which have attracted large audiences, serve to highlight recent developments, to outline areas in need of further research, and to keep the physician informed of trends and changes in concepts. The publicity and news releases that emanate from the symposiums, plus the published reports in THE JOURNAL, further expand the area of influence.

The fall symposium, "Nutrition in Pregnancy," held on Oct. 11, 1957, at the University of Missouri, was sponsored by the Council with the cooperation of the Boone County Medical Society, School of Medicine, and the Adult Education and Extension Service of the University of Missouri. The speakers and their topics were as follows:

(1) Dr. Ray Hepner, Associate Professor of Pediatrics, University of Missouri Medical Center—"Influence of Maternal Nutritional Level on the Fetus and Infant"

(2) Dr. Icie Macy Hoobler, Consultant, Merrill-Palmer School Former Director, Research Laboratory, Children's Fund of Michigan—"Metabolic and Biochemical Changes in Normal Pregnancy"

(3) Dr. Genevieve Stearns, Research Professor of Orthopedics, State University of Iowa—"Importance of Nutritional State of Mother Prior to Conception"

(4) Dr. Joseph Warkany, Professor of Pediatrics, University of Cincinnati—"Nutrition Experiments as an Instrument of Teratologic Research"

(5) Dr. William J. McGanity, Associate Professor of Obstetrics and Gynecology, Vanderbilt University School of Medicine—"The Effect of the Reproductive Cycle on Nutritional Status and Requirements"

(6) Miss Dorothy Vorhies, Associate Professor of Nutrition and Dietetics, Outpatient Department, University of Missouri Medical Center—"Dietary Habits During Pregnancy"

The Council, in cooperation with the Nutrition Foundation, Inc., held a week-long symposium as a scientific exhibit feature of the San Francisco A. M. A. meeting. This presentation, also called a question and answer symposium, was entitled, "Diet as a Preventive and Therapeutic Tool for the Doctor." Each day a particular aspect of clinical nutrition was discussed, e. g., diet in cardiovascular renal disease, including the sodium-restricted diet, diet in coronary artery disease, diet in hypercholesterolemia, and diet in disease. Although the session on cardiovascular renal disease was the most popular, the others, which included diet in certain problems of internal medicine, the nutritive value of foods, diet in health, and diet and weight control, were well attended. A total of 22 topics were presented and discussed informally. A rather complete summary of the symposium was published in THE JOURNAL (167:1514-1515 [July 19] 1958). Plans are being formulated for a similar question and answer symposium for the 1959 annual A. M. A. meeting.

Exhibits

The Council, in cooperation with the Bureau of Exhibits, constructed a new exhibit entitled, "You Can Reduce," which has proved to be very popular. The exhibit demonstrates how to formulate a basic reducing plan tailored to fit the needs of the individual. The viewers can participate physically in three different ways, thus assuring their interest.

The staff of the Council office showed exhibits at seven professional meetings during the year.

Review of Educational Materials

The Council statement of review, granted for use on educational advertising and other informative materials, has become an important symbol of quality. The Council reviews these materials prepared to inform the public and the profession of the nutritional and physiological values of foods without reference to specific brands, processors, or distributors. The distribution by the food trade associations of some of these booklets and charts has exceeded 10 million.

During the year under consideration, the Council reviewed for medical soundness 55 educational advertisements, three booklets, and several charts. These materials were submitted principally by the American Meat Institute, the National Dairy Council, the American Institute of Baking, and the National Live Stock and Meat Board. A large number of advertisements, booklets, manuscripts, scripts, and films were reviewed by the Council office. These materials, of course, carry no statements of the fact that the A. M. A. review was made.

Joint Report of the Fluoridation of Public Water Supplies

The Board of Trustees directed the Council on Drugs and the Council on Foods and Nutrition to prepare a joint report on the safety and effectiveness of the fluoridation of public water supplies. Previously, the Councils had prepared a joint statement on the safety of fluoridation, which was published in 1951. At that time the opinion was expressed that "The use of drinking water containing up to one part per million of fluoride is safe." The 1957 report was prepared by the two Councils and presented to the Board at the Clinical Session in December, 1957. The Board transmitted the report to the House, which accepted the report as submitted.

Cooperation with the Nutrition Foundation

The Nutrition Foundation, New York City, is an incorporated organization formed by the food industry for the support of basic research and education in the science of nutrition. As part of a medical and nutrition education program, the Foundation cooperates with the Council on Foods and Nutrition in several activities.

The Nutrition Foundation sponsors the Joseph Goldberger award in Clinical Nutrition that is presented by the Board of Trustees of the A. M. A. in cooperation with the Council. The Goldberger award for 1958 (a plaque and $1,000) was presented in absentia to Dr. Virgil P. Sydenstricker, professor emeritus of medicine at the Medical College of Georgia. Dr. Sydenstricker has made outstanding contributions to the knowledge of nutrition and has done extensive research on nutritional deficiency diseases.

The Nutrition Foundation cooperated and helped support the Council program of request articles for the Council columns of THE JOURNAL. These articles were discussed earlier in this report.

A further activity initiated during the year in cooperatoin with the Foundation provides for 10 annual fellowships to qualified medical students for intensive research under faculty supervision. The purpose is to stimulate medical students to take an active interest in clinical nutrition. These fellowships of $600 each are granted in honor of the Joseph Goldberger award recipients. The first awards, given in 1957, were presented in honor of Dr. Paul György. Ten students selected from 40 applicants were granted the fellowships for use during the summer period.

Committee on Gastrointestinal Dietary Therapy

The Council, in cooperation with the American Dietetic Association, is sponsoring a committee to study the diets commonly used in the therapy of gastrointestinal diseases.

The committee, under the Chairmanship of Dr. Franz J Inglefinger, Massachusetts Memorial Hospital, is exploring current practices and concepts as a prerequisite to making recommendations for the necessary research. The work of this committee should lead to a more rational concept of the so-called soft, bland, or low residue diet.

Restricted Sodium Diet Booklets

Three diet booklets, describing severe, moderate, and mild sodium restriction at several caloric levels, have been produced in cooperation with the American Heart Association, the American Dietetic Association, the U. S. Public Health Service, and the Nutrition Foundation, Inc. These booklets, distributed by the local chapters of the American Heart Association, have proved to be most useful to the physician and to the diet therapist. In addition, table top exhibits and supporting materials have been prepared in order to promote the use of these booklets.

Activities of the Office of the Secretary

The Secretary and Assistant Secretary participated in a number of programs as representatives of the Association. These included formal addresses before many food trade associations and state and national professional organizations. Many of the addresses were reproduced in the appropriate trade association journals. A number of the articles were written by the Secretary.

The Council office was pleased to cooperate with the editorial department of The Journal in a consulting capacity for the section entitled, "Questions and Answers," and for a number of articles and editorials. The office was called upon many times to review articles for *Today's Health* and for the Public Relations Department. Reciprocal cooperation was enjoyed with these departments and with the other departments and bureaus of the Association.

Organization

Dr. Charles S. Davidson is the Chairman of the Council and Dr. John B. Youmans the Vice-Chairman. Dr. Wendell H. Griffith was re-appointed to another five-year term with the Council.

The Council held its regular fall meeting at Columbia, Mo., on Oct. 11, 1957. Two special meetings were also scheduled during the year. One was held on Aug. 7 with the Council on Drugs to hear testimony on the fluoridation of public water supplies, and the other was held in New York on April 11, 1958, with the *Ad Hoc* Committee of the American Drug Manufacturers Association to discuss the Council statement on multivitamin preparations. The regular spring meeting of the Council was held in San Francisco in June, 1958.

Several Council members received recognition for their outstanding contributions in the fields of science and administration.

Dr. Conrad A. Elvehjem, a member of the Council of long standing, has been appointed President of the University of Wisconsin. He had been Chairman of the Department of Biochemistry since 1944 and Dean of the University Graduate School since 1946.

Dr. George R. Cowgill was presented the Osborne and Mendel award of the American Institute of Nutrition. The award was given in recognition of his many pioneer and subsequent fundamental research contributions to our knowledge of the B vitamins and of protein nutrition; and for his numerous other broad contributions to the science of nutrition as a teacher, as editor of *The Journal of Nutrition*, and as an expert advisor in the field.

Dr. John B. Youmans is retiring as Dean of Vanderbilt University Medical School at Nashville and will begin an assignment as technical director of research in the office of the surgeon general.

Dr. Grace A. Goldsmith has been selected as the new chairman of the Food and Nutrition Board, National Research Council. She has been vice-chairman for several years and has taken over the chairmanship upon Dr. Elvehjem's resignation.

Dr. David B. Hand returned as head of the Department of Food Science and Technology at the New York State Agricultural Experiment Station after a leave of absence on special assignment with UNICEF.

COUNCIL ON MEDICAL PHYSICS

This report covers the period from July 1, 1957, through June 30, 1958, and is the second Annual Report of the Council, which was organized in mid-1956. The Council studies and reports to the profession and to the public on general classes of medical apparatus and on problems and techniques which involve the application of physical and biophysical principles in medicine.

During the past two years, the mouth-to-mouth method of artificial respiration has received much attention in the public press. Believing that physicians would be interested in knowing of the scientific data in support of the efficacy of this method, the Council invited a number of workers who had done substantial amounts of research on this technique to contribute to a symposium on the subject. A symposium consisting of four papers was published in the Council columns of The Journal in May, 1958. While, if properly applied, this method of artificial respiration can be effective in infants, small children, and adults, it has, up to the present time, been recommended for general use primarily in infants and small children. A study of the scientific data and of the other factors involved is being conducted by the Council and the publication of a general evaluation statement is planned.

The inhalation of negative air-borne ions has been proposed for the relief of asthma, hay fever, the improvement of the feeling of well-being, and for a number of other conditions. This controversial subject is under evaluation by the Council at the present time. The evidence in support of the pros and cons of electrical stimulation of the muscles of respiration as a means of artificial respiration is being reviewed and the report is to be published shortly. The use of radioactive (beta) sources in the treatment of eye diseases is now being reviewed by Council consultants and will soon appear in the Council columns of The Journal.

At the December, 1957, Clinical Session and at the June, 1958, Annual Meeting, the Council sponsored an exhibit on emergency artificial respiration. The exhibit included (1) mechanically animated figures demonstrating the back-pressure arm-lift method of artificial respiration; (2) a description of various manual methods and the mouth-to-mouth method of artificial respiration; and (3) charts presenting data on the efficacy of these various methods of artificial respiration.

For a number of years the Council on Drugs has sponsored the publication of the book "AMA Fundamentals of Anesthesia." Because a number of other very similar books are now available to the profession, that Council decided not to continue with the publication. The Council on Medical Physics then decided to explore revision of the book so as to place more emphasis on the various types of apparatus found in the operating room, including anesthesia equipment, other respiratory equipment, cardiac monitors, defibrillators, and pacemakers. It is also planned to devote attention to the problems of operating room safety and explosion hazards.

During the year the Board of Trustees asked the Council to consider the advisability of establishing a Committee on Atomic Medicine and Ionizing Radiation and after study the Council recommended that such a Committee be established. The Board approved the recommendation and the House of Delegates concurred at the June, 1958, Annual

Session. Careful attention is being given to the selection of the members of the Committee in order to expedite its activities.

During the period of this report 1,032 reprints were distributed from the Council office. These covered such diverse fields as the therapeutic uses of ultrasonic energy, artificial respiration, ozone apparatus, uses of diathermy, therapeutic exercise, instruction sheets for building physical therapeutic devices such as the shoulder wheel, hand exercise table, walker, electrical muscle stimulators, and the whirlpool bath. Also distributed were 59,550 pocket-size instruction cards on the back-pressure arm-lift method of artificial respiration. A new pocket-size instruction card was developed which also included the mouth-to-mouth method of artificial respiration for use in infants and small children. This card became available in June, and approximately 300 were distributed to the end of that month.

The program of the new Council has come along slowly, yet on a sound procedural basis. The coming year promises to be an even more productive one in terms of service to the profession and to the public.

COMMITTEE ON RESEARCH

During the current year the activities of the Committee on Research have been expanded and steps have been taken to revamp procedures.

Cooperative Investigation

The Committee on Research is awaiting the final report of the Subcommittee on Breast and Genital Cancer in order to determine the effectivenes of collaborative reporting developed in conjunction with this study. This approach may be of value in the study of unresolved problems in which no investigator has a large enough series of cases to warrant publication of conclusive findings.

Subcommittee on Breast and Genital Cancer.—The Subcommittee on Breast and Genital Cancer, reconstituted from the Cancer Study Group of the former Subcommittee on Steroids and Hormones, has completed the reanalysis of the case reports received in the study and, at the present time, is engaged in the preparation of the final report. It is anticipated that the report should be ready for publication at an early date. The Subcommittee intends to distribute an auxiliary report to interested parties containing all of the statisical information derived from the study. In this way the complete information on all phases of the study will be made available to everyone. It is hoped that this auxiliary report will be distributed soon after the final report is made to the Committee on Research. The Subcommittee felt that sufficient progress had been made in the reanalysis to permit the presentation of a preliminary report at the Seventh International Congress on Cancer, in London, England, on July 7, 1958.

Subcommittee on Diabetes and Pregnancy Wastage.—The Subcommittee on Diabetes and Pregnancy Wastage was expanded during the year so that there is representation from eight geographic regions of the country. The scope of the study has been expanded, and under the present plan, a series of patients treated with steroids and hormones will be compared with a series treated with long-acting preparations and a series of untreated controls. It is anticipated that this study will require at least two years for the accumulation of sufficient data which would form the basis of a report. The Subcommittee intends to correlate the microscopic findings from a study of the placental tissue and autopsy specimens with the clinical use of the drugs.

Subcommittee on Blood Dyscrasias.—The Subcommittee on Blood Dyscrasias was expanded during the year and its membership has geographic representation from eight areas of the country. The Registry on Blood Dyscrasias, conducted by the Subcommittee, has completed a two-year pilot study and since 1956 has received 356 case reports submitted by 143 physicians. The Subcommittee on Blood Dyscrasias has reviewed the work of the Registry and as a result has concluded that the Registry has served to alert physicians to the possible toxicity to the hemopoietic system of some of the newer therapeutic agents. The Subcommittee proposed that better coverage could be obtained if the number of collaborators were increased and steps were taken to provide wider distribution of the information. It is hoped that through such an expanded program the resources of the Registry may be made more valuable to the medical profession.

Educational and Informational Projects

The Committee on Research authorized the formation of a Subcommittee on Publications to solicit original articles, abstracts, and reviews concerned with research advances in the basic medical sciences. However, to date, little progress has been made because of an apparent duplication between units of the A.M.A. which has now been resolved; it is hoped that the Subcommittee will soon transmit material for publication. During the year the Committee on Research authorized the publication in The Journal of a statement by the Subcommittee on Blood Dyscrasias entitled "Blood Dyscrasias Associated with Promazine Hydrochloride Therapy"; an article entitled, "Drug Reactions, Enzymes, and Biochemical Genetics" by Arno G. Motulsky, M.D.; and a statement entitled "Classification of Types of Hypertension," by Drs. Albert A. Brust, George A. Perera, and Robert W. Wilkins. During the year the headquarters staff arranged a Conference on Staphylococcic Infections in Hospitals and representatives of national professional and public health organizations met in Cleveland, on Nov. 14, 1957, to consider this problem. The participants of the Conference drafted a report which the Board of Trustees accepted and sent to the Joint Commission on Accreditation of Hospitals for consideration and action. This conference has served as a stimulus for a number of meetings by several of the organizations which sent representatives to Cleveland. In addition, a number of hospitals have created "Committees on Infection" to investigate and develop control measures within their own institutions as recommended by the Conference. Interest has been manifested in the Proceedings of the "Conference on Comparison of the Biological Properties of Steroids and Hormones" and a number of requests have been received from overseas for copies of this transcription.

Grants-in-Aid

The Board of Trustees increased the appropriation for this program to meet the estimated increase in the number of requests for funds anticipated for 1958. The Subcommittee made 88 awards, totaling approximately $30,000, from among 112 applications received—of these awards, 82 went to medical schools and 6 went to other medical institutions. The Subcommittee's records show that 38 research projects, which received grants prior to this year, were the basis of articles appearing in scientific periodicals.

COMMITTEE ON PESTICIDES

This is the ninth annual report of the Committee on Pesticides. During the past year, the following activities were engaged in by the Committee in furtherance of its study program on the health hazards of pesticides.

Educational Activities

The series of Committee reports reviewing medical and public health aspects of pesticidal chemicals has been extended to 23 with the recent publication in The Journal of the report on the recurring problem of thallotoxicosis. A staff report discussing morbidity and mortality from the use of economic poisons in the United States is presently awaiting publication in the *A. M. A. Archives of Industrial Health.*

This report is based on an analysis of 37,000 incidents of poisoning reported by poison control centers, industrial commissions, and state departments of health for the period covering 1956-57. A preliminary report, by the Secretary, on antagonism of the lethal effects of parathion was also published in the *Federation Proceedings*, March, 1958. The full report of the study of chemical protection against parathion poisoning is awaiting publication in *Archives internationales de pharmacodynamie et de thérapie*.

Annual Meeting

The Committee held its annual meeting on May 10, 1958, at the headquarters of the American Medical Association. Current problems involving council status, legislation, and environmental health were discussed.

The possible hazards of fertilizers containing elements of chromium and nickel were next considered. A report of tumors found on autopsy of farm animals was considered and the question of whether this was due to the possible carcinogenic action of the contaminants in the fertilizer was reviewed. The high amounts of chromium and nickel found in fertilizer were considered to be due to poor analyses. No hazard to plants, humans, or wildlife could be ascertained from the available data.

The health hazards of pesticides to humans and wildlife from government sponsored mass pest control programs were next discussed. Opposition to broad-scale pest extermination programs conducted by the U. S. Department of Agriculture has recently culminated in a current court action in the East. An injunction has been sought to prevent the federal government from engaging in unwanted pesticide sprayings which arose from the application, last year, of 3,000,000 pounds of DDT in New York, New Jersey, and Pennsylvania. The plaintiffs are attempting to prove that the hazards to human and animal life from the use of pesticides on a large scale far outweigh their benefits.

The importance of this test case is related to whether government agencies will be prohibited from carrying out pest control programs because of allegations of health hazards. The plaintiffs attempted to show that the pest control program was dangerous, unusual, and illegal use of authority. This was difficult to establish since it was requested by three states and done in cooperation with the U. S. Department of Agriculture. The possible hazards from applying pesticides by aircraft over privately owned areas included injury to human health and contamination of food for animals and humans by pesticide residues. Attention was directed to the claim that no residue above tolerance was found to be present on any garden crops which were so sprayed.

The fire ant control program presents a similar problem in the South. It was pointed out that the people who complain about such programs are usually not the ones who have to face the insect problem. Local people who faced the fire ants requested the U. S. Department of Agriculture to aid them in controlling the pest. Steps were taken to minimize the hazards to beneficial forms of life by treating certain portions of the infested areas by air and others by hand. It was concluded that opposition to spraying programs is often caused by persons who do not know enough about such programs and are frightened by what they do not understand.

The problem of witch weed has also presented itself in this area. This parasitical plant attaches itself to the roots of the grass family and destroys crops such as corn. Cooperation, within government, of the various departments (Fish and Wildlife Service, United States Public Health Service, Department of Agriculture) concerned with the hazards of agricultural pest control programs has begun. The Committee believed that many obstacles could be avoided if conflicting interests within government could be consulted before new pest control measures were employed.

The Committee voted that both sides of the issue in these pest control programs should be pointed out when inquiries are directed to the Committee office. It recommended that steps be taken to provide clearer understanding of the hazards presented by the spraying programs by showing the steps that have been taken to prevent injuries from occurring, as well as the need for such programs which are of benefit to the public.

Compliance with the Miller Pesticide Amendment to the FDA Act was also discussed. This Amendment makes it illegal to ship food in interstate commerce if the residue tolerances are not complied with. It has been reported that pesticides are being used on forage crops too close to harvest and, as a result, the residues in the end products exceed the limits set by the amendment. No knowledge of any product put on the market with excessive amounts of residue was reported. However, it was pointed out that present methods of analysis may not pick up information on the toxicity of metabolites. The introduction of new agents is faster than research on the metabolite products. It was noted that the greatest proportion of DDT present in body fat of the general population came from residues of insecticide in meat; however, the amounts found are below the tolerance limits. A statement concerning the present status of this matter will be considered by the Commitee for future publication.

Service Activities

The Committee on Pesticides collaborated with other groups and organizations during the past year on problems of mutual concern. It continues to cooperate with the Interdepartmental Committee on Pest Control. The Committee participated in the selection of several generic names for new pesticides during the past year. Through the Secretary it maintained its representation on the Sectional Committee on Common Names for Pest Control Chemicals (American Standards Association) and Liaison Panel of Food Protection Committee (National Research Council). The Secretary participated in a symposium on pesticide poisoning at the annual meeting of the American Academy of Occupational Medicine at which time data was presented on Committee studies on the incidence of pesticide injury.

The Committee continues to provide information and assistance to the Committee on Toxicology in the development of a model law to require precautionary labeling of hazardous substances. It reviewed existing labeling statutes, as applied to pesticides, and the members participated in the two American Medical Association legislative conferences on the labeling of hazardous substances.

During the past year, the Committee was asked by physicians and private agencies to consider and render opinions on a variety of medico economic problems involving the hazardous potentialities of pesticides. It considered problems such as the hazards of dispensing of rodenticides (e.g., thallium and strychnine) in metal bottle caps, organic phosphate insecticide poisoning, clinical experience with malathion insecticides, and thallium poisoning. It also considered the merits of a product promoted for the removal of spray residues on fruits and vegetables.

The Committee was requested by a government agency to review the present status of vaporizing devices for insecticides. Cases of poisoning from the accidental ingestion of vaporizer pellets by children, agranulocytosis, other systemic injuries and possible chronic poisoning from continuous exposure to vaporizer fumes were compiled from Committee files. A request from industry to review and make recommendations on the occupational hazards of mercury fungicides is also under consideration. Dieldrin poisoning in public health workers, the hazards of arsenicals in medicated animal feeds and pesticide food contaminants as possible carcinogens are also being considered by the Committee.

COMMITTEE ON TOXICOLOGY

This is the fourth annual report of the Committee on Toxicology. The following is a résumé of its more important activities and accomplishments during the past year.

Educational Activities

The series of Committee reports has been extended to 10 with the publication of a report on "Recommendations of Committee on Toxicology on First-Aid Measures for Poisoning." An additional committee report on "Accidental Iron Poisoning in Children" is under consideration.

Two staff reports were published in THE JOURNAL on "Toxicity Problems of Cosmetics"(166:638 [Feb. 8] 1958) and "Principles for Precautionary Labeling of Hazardous Chemicals" (166:2154 [April 26] 1958). Other staff reports appeared in the *American Perfumer* ("Toxicity of Cosmetics"), *Journal of the American Pharmaceutical Association* ("Uniform Chemical Label Law"), *Canadian Medical Association Journal* ("Problems of Assessing Clinical Toxicity"), *Food, Drug and Cosmetic Law Quarterly* ("Labeling of Dangerous Household Chemicals"), and the *Home Safety Review* of National Safety Council ("Calculated Risks of Accidental Poisoning in the Home").

Legislative Activities

One of the most far-reaching projects the Committee has undertaken is the drafting of a model bill to require a warning statement in the identification of hazardous ingredients on the labels of chemical products. This bill is intended to reduce needless injuries and deaths by requiring hazardous chemicals to carry warning labels and to identify dangerous ingredients.

With the assistance of the Law Department, a survey of existing laws and regulations was compiled last year. This study revealed a hodge-podge of state and local regulations for the labeling of chemicals. The draft of a model bill has been finalized and meetings with interested parties in government, medicine, and industry are being held.

The first Legislative Conference was held on May 9, 1958, and it was attended by representatives of 40 national organizations such as the American Municipal Association, Michigan State Medical Society, American Pharmaceutical Association, Industrial Medical Association, National Safety Council, etc.

Attention was focused on the general nature of the problem as seen by the medical profession, public health officials, and the public, by remarks from a pediatric representative, and officials of the American Public Health Association and the National Safety Council. The principles which the Committee employed in formulating the provisions of a model law for labeling all types of hazardous substances were next reviewed. A comparison of the model bill with other tentative legislative proposals followed.

An industry-wide label law conference was held on July 25, 1958. The second meeting discussed proposed legislation requiring the declaration of hazardous ingredients and warning statements on the label and in the accompanying literature of household, commercial, and industrial packaged chemicals. Representatives of trade associations, toxicity testing laboratories, chemical trade unions, and other interested groups participated.

A film strip, for use on television newscasts, was recently prepared for the Committee on Toxicology by the Public Relations Department. The film strip is devoted to publicizing the Committee's efforts to obtain warning statements on the packages of chemical products and it highlights the Committee's recommendations on this subject. This film strip was released during the first week of May, 1958, and was sent to nearly 400 television stations throughout the country.

Service Activities

The Committee on Toxicology has collaborated with other groups and organizations during the past year. The Committee cooperated with the American Academy of Pediatrics and the American Public Health Association in a nationwide project to study the treatment of kerosene poisoning. Approximately 30 poison control centers and affiliated hospitals and clinics participated in this clinical study which is expected to take from three to five years. An initial result of this study has been the discovery of a means for determining blood levels of absorbed petroleum distillate. The value of anti-inflammatory agents such as steroid hormones has also been investigated.

Through the Secretary, representation is maintained on the Committee of the Chicago Poison Control Center, the Steering Committee of the National Clearinghouse for Poison Control Centers, the American Standards Association–Z66 Committee on Hazards to Children, and the U. S. Food and Drug Administration's Committee on Adverse Reactions to Drugs. During the past year, the Secretary addressed the American Academy of Occupational Medicine, the American Society for Pharmacology and Experimental Therapeutics, and the Food and Drug Law Section of the New York Bar Association.

During the past year, the Committee was asked by public and private agencies to consider and render opinions on a variety of problems involving the hazardous potentialities of chemicals. Among them were questions concerning the hazards of a dental cosmetic, packaging of hazardous nonmedicinal agents in capsule and tablet form, chemical additives to foods, revision of the New York City Sanitary Code, and the control of the sale of rocket chemicals. The sale of drugs in supermarkets, the limitations of "beer-can" fire extinguishers, drug data for poison centers, and hazards of carbon tetrachloride in hobby activities were also considered.

Several hundred inquiries on the health aspects and usefulness of pesticides were also answered by the Committee office. Assistance was provided various departments at headquarters in the preparation of book reviews, "Questions and Answers," reviewing manuscripts, and advertising on matters involving toxicology.

COMMITTEE ON COSMETICS

This is the ninth annual report of the Committee on Cosmetics. During the past year the Committee has continued to promote its educational program through the publication of reports, articles, and editorials in THE JOURNAL of the American Medical Association and in *Today's Health*; in presenting symposiums before professional groups; and in its inquiry and advisory service.

The Committee's major function continues to be its accumulation, preparation, and dissemination of information pertinent to its objectives. These are to promote a better understanding of the function, care, and significance of the skin, with special reference to the role of cosmetics and allied pereparations; to assist in the acquisition of new knowledge concerning the relationship between cosmetics and the skin; to emphasize the serious psychological implications of these conditions characterized by temporary or permanent skin disfigurement; to provide the public with such information as will enable it to wisely select and intelligently use cosmetics; to stimulate increased cooperation between the health professions and the toilet goods industry in providing the public with safe, effective, ethically advertised products; and to supply available data from our files to authorized persons.

At the invitation of the Medical Sciences Section of the American Association for the Advancement of Science, the Committee held its third symposium "The Human Integument–Normal and Abnormal" in December, 1957. This was a two-day program with half-day sessions devoted to the protective function of the skin, circulation and vascular reactions, sebaceous gland secretion and pathogenetic factors in premalignant conditions and malignancies of the skin. In the future, the symposium papers will be published as a monograph by the American Association for the Advancement of Science. Dr. Stephen Rothman, Chairman of the Committee on Cosmetics, is the editor. Discussions have been initiated on the 4th symposium of the Committee which will include papers on dermatologic and surgical procedures to improve the appearance of skin disfigurements.

During the past year, the following reports have been published in THE JOURNAL under the auspices of the Committee on Cosmetics: "Control of Axillary Sweating and of Body Odor" by Dr. Franz Herrmann and Dr. Marion B. Sulzberger; "Scientific Formulation of Cosmetics" by Dr. Paul G. I. Lauffer; and "Toxicity Problems of Cosmetics" by Dr. Bernard E. Conley. A report entitled "Suntanning-Potentiation with Oral Medication" prepared by Dr. Marion B. Sulzberger and Dr. Aaron B. Lerner has been authorized for publication. Other reports under consideration concern the use of antibiotics in cosmetics and the role of electrolysis in the management of hypertrichosis.

The office of the Committee on Cosmetics is now engaged in a study of resistance to inaccurate advertising claims of three health-oriented groups—nurses, physicians' wives, and *Today's Health* readers.

The Committee is particularly indebted to the many consultants who have so willingly offered and rendered assistance in special problems during the past year.

CHEMICAL LABORATORY

The portion of the Chemical Laboratory's program which demanded about three-quarters of its time and effort during the past year was concerned with its Tests and Assays program. This program involves the establishment of monographs of tests, procedures, and tolerances in cooperation with pharmaceutical firms for new and nonofficial drugs on the market. During this past year monographs have been completed and published on acetazolamide, acetazolamide sodium, aminopentamide sulfate, busulfan, carbazochrome salicylate, chlorquinaldol, cryptenamine, cryptenamine acetates, cryptenamine tannates, dimethicone, diprotrizoate sodium, diprotrizoic acid, ethchlorvynol, fludrocortisone acetate, hydroxyzine hydrochloride, hydroxystilbamidine isethionate, iodipamide, iodipamide methylglucamine, iodipamide sodium, isometheptene, isometheptene hydrochloride, isometheptene mucate, mecamylamine hydrochloride, methyprylon, monobenzone, sitosterols, tricyclamol chloride, tridihexethyl iodide, and zoxazolamine. Monographs on five other products were completed but not published for various reasons. Work is in progress and in most instances near completion for 28 other new drugs.

During this past year serious consideration has been given to the mechanism of operation of the Tests and Assays program and its aims. There has been much correspondence and consultation with organizations concerned with this problem and the matter will extend into the coming year.

Work has continued on the in vitro method for the determination of the rate of release of delayed and sustained release medication. The early phases of the work were embodied in a paper entitled "In Vitro Method for the Determination of the Rate of Release of Amphetamine Sulfate from Sustained Release Medication." This was published in the journal *Drug Standards.* There has been an exchange of ideas on these testing procedures with representatives of some of the pharmaceutical firms and with technical personnel of the Food and Drug Administration. Additional studies have been continued in an attempt to refine the testing method to embrace a wide range of pellet sizes, and to study the rates of release of several different preparations of sustained release capsules.

Because of a need for a rapid means for identifying tablets or capsules, there is being developed in our laboratory what we hope will be a simple, practical aid in the identification of drugs. The scheme relies on the physical characteristics such as size, shape, color, scoring, and similar features of tablets and capsules. A preliminary study of 500 products has been made using the proposed scheme and it appears to be a promising tool for the stated purpose. It would presumably be of value to physicians, attendants in emergency receiving rooms, toxicologists, police officers, and pharmacists—in particular, hospital pharmacists. The promise shown by the scheme and the favorable comments from several individuals indicate that the time and effort to carry out such a comprehensive scheme is warranted.

Arrangements were completed with the College of American Pathologists for the use of the Chemical Laboratory personnel and facilities to check hemoglobin standards available on the market. This is a phase of a certification program the College of American Pathologists is carrying out on hemoglobin standards.

An investigation was undertaken on certain solutions and solid phase materials with respect to their feasibility as ultraviolet reference standards.

Collaborative studies, at the request of an outside agency, for several of the cardiac drugs were conducted and completed.

The Laboratory this past year, as it has for many years, drew the structural formulas for the Council on Drugs book "New and Nonofficial Drugs." It took an active part in an advisory capacity to the Council on Drugs in its nomenclature program. An outgrowth of this has been the establishment of an extensive file which lists the generic name and structural formula of all new drugs which come to our attention. The Laboratory worked with and for many departments within the American Medical Association. The staff, almost daily, was requested by members of the Editorial Staff to check the accuracy of chemical statements and nomenclature in articles presented to the A. M. A. journals. Consultation by a member of the staff was regularly conducted with the A. M. A. Library personnel to advise on the classification of entries of chemical and pharmaceutical information for the Quarterly Cumulative Index Medicus. Members of the staff advised the Advertising Committee of the American Medical Association with respect to chemical and other technical statements appearing in advertising copy. Other services to American Medical Association departments were concerned with reviewing chemical articles proposed for publication in A. M. A. journals, answering queries from the Questions and Answers column in THE JOURNAL, supplying data on composition of products, and reviewing books for THE JOURNAL and the *New Physician.* Many letters of inquiry on technical matters were answered. Cooperative work and liaison have been maintained with the Food and Drug Administration, the United States Pharmacopeia, The American Dental Association, and the American Pharmaceutical Association.

Because of the work during past years on cigarette smoke and filters which was carried out and published by the laboratory, a member of the staff was requested to appear before the Blatnick Committee—a subcommittee of the United States House of Representatives. Testimony was given with respect to our studies. Later we were requested by the Federal Trade Commission to take part in discussions concerning the establishment of standard methods for testing cigarettes.

BUREAU OF INVESTIGATION

Of the several scientific activities of the Division of the Councils of Therapy and Research, the Bureau of Investigation differs only in the fact that it deals with the unscientific side of medicine. It is concerned with reporting

UMWA Welfare and Retirement Fund.—The report of the Committee concerned with relationships between the medical profession and the United Mine Workers of America Welfare and Retirement Fund is included in the report of the Council on Medical Service (page 1109).

Guides for Evaluation of Management and Union Health Centers.—In the previous Annual Report, the Committee noted that two changes would be recommended to the House in the text of these Guides, and these changes were approved by the House at the 1957 Clinical Session. Following the adoption of these changes, the Committee further recommended to the Councils on Medical Service and Industrial Health that the wording of two footnote references be changed in order to bring this Guide up to date. This recommendation was approved by the Councils at their meetings in June, 1958. Future printings of the "Guides for Evaluation of Management and Union Health Centers" will replace the reference "1954 Principles of Medical Ethics" with the statement "From the 1954 edition of the Principles of Medical Ethics which are contained in the Opinions and Reports of the Judicial Council (1957) and which have been incorporated in the June, 1957, Principles of Medical Ethics." The reference to "Guiding Principles of Occupational Medicine" will be deleted and substituted with "Statement on 'Scope, Objectives and Functions of Occupational Health Programs,' (J. A. M. A. 164:1104-1106 [July 6] 1957)."

1958 Survey of Union Health Centers.—In February, 1958, the Committee initiated its third Survey of Union Health Centers. The first two reports on these centers which were published in 1953 and 1954 contained descriptions of 12 and 17 health centers respectively. The new publication to be issued will contain descriptions of 27 of the approximately 50 such centers in existence. This survey is one of a continuing series to be conducted periodically in order to keep the medical profession informed of developments in this field.

In view of the numerous requests for copies of this publication, the 1958 Survey will include a copy of the revised "Guides for Evaluation of Management and Union Health Centers."

A Preliminary Guide for Measuring Work Absence due to Illness and Injury.—The last report of the Committee cited the studies, conferences, and various published materials on the subject of work absence which had created a considerable amount of interest among many physicians. It was also reported that the Committee was engaged in the preparation of a Guide on the basis of whose definitions and formulas a uniform group of statistics could be compiled by physicians in industry. The Preliminary Guide as approved by the Councils on Medical Service and Industrial Health will be published in pamphlet form and distributed soon to several thousand physicians and other personnel working in this field. The Committee is inviting comments on the Guides it has prepared, and plans to issue subsequent revisions based upon the suggestions and experiences of persons who use these Guides in their work.

Miscellaneous: Being prepared for publication and distribution to the medical profession is a "Summary Report on Health and Welfare Plans Under Collective Bargaining." This publication represents a distillation of some pertinent data relating to the provisions of hospital, surgical, and medical benefits in 300 plans which cover approximately five million workers, or over 40% of the total number of employees estimated to be covered by health insurance plans under collective bargaining as of the end of 1955. The material in the Committee's publication is based upon a study prepared by the Bureau of Labor Statistics of the United States Department of Labor. Its publication is considered to be an aid to those physicians and medical societies interested in various types of coverage under, and provisions of, collective bargaining agreements.

The Committee has been authorized by the two Councils to conduct a survey of small plant occupational health programs for the purpose of providing the profession with descriptions of various examples of how such programs operate, the types of service they provide, the relationships of physicians involved in such programs to physicians in the community, and other aspects of the operations of these programs which will be of interest to the medical profession. An important by-product of this study is expected to be the recognition by physicians of the value of such programs, particularly among establishments employing fewer than 100 employees.

The Committee has devoted some time to discussing the activities of different types of mobile units and the range of services they provide. Its future meetings will discuss this matter in greater detail, particularly to determine to what extent the screening of employees for the express purpose of detecting nonoccupational diseases is properly a part of an occupational health program.

Committee on Medical Education and Training (Standing Committee).—This Committee studied the matter of improving the teaching of occupational medicine. A statement, setting forth clearly what along the lines of occupational medicine should be taught to medical students, is now being prepared.

Joint Conference with Chairmen of State Medical Society Committees on Industrial Health.—The Council on Industrial Health has regularly held, on the eve of its Annual Congress on Industrial Health in January or February, a meeting with the chairmen of the committees on industrial health of the state medical associations. This meeting has proved valuable both to the state medical associations and to the American Medical Association. It has helped to keep the Council apprised of problems requiring its attention. At the same time it has brought to the Council, for the solution of such problems, the collective thinking of the state chairmen, representing the views of physicians engaged in occupational health at the "grass roots." Solutions thus developed have been of inestimable value to the states concerned, often sparing them from having to "learn the hard way." Additionally, the Council, attuned as it is at A. M. A. headquarters level to the views and policies of organized medicine at this level, has been able to communicate these views and policies to the state chairmen for dissemination to their "constituencies" for their information and guidance. Conversely, the state chairmen and the industrial physicians they represent, being in touch with privately practicing physicians at the "grass roots" level, have been able to gather the latters' views, which have a vital bearing on industrial medicine, and to communicate these views to the Council. This has made the pronouncements of the Council, and of the A. M. A. at the Council's instance, more realistic and helpful, as such pronouncements do not emanate from any "ivory tower" out of touch with the hard facts of life encountered in the day-to-day practice of medicine and industrial medicine.

Committee on Scientific Development (Standing Committee).—The Committee on Neurological Disorders in Industry (Dr. Edward D. Schwade, Milwaukee; Dr. Harry E. Tebrock, New York City), approved by the House of Delegates in December, 1957, held its first meeting in June and felt that a great deal of careful thinking was needed in order to determine in which direction the Committee should proceed. The Committee felt that workers with a neurological disorder were being greatly discriminated against by industry, and that the preparation of guides or standards for industrial physicians to follow would be extremely valuable. The Committee felt that it would have to do some research to see the problem from the standpoint of the industrial physician before it went ahead with its plans.

Committee on Industrial Medical Records.—This Committee, which has been inactive since presenting its original report on November, 1956, was reactivated under a new chairman. The Committee will study the 1956 report and proceed from there. It is expected also to develop record and report forms for use in the study and control of sick absence in industry. This material will ultimately be utilized in conjunction with the Guides which are being developed by the Committee on Medical Care for Industrial Workers

Committee on Occupational Cancer.—The Committee's report on "Occupational Cancer: Methods of Epidemiological Study" was published in THE JOURNAL in April.

Committee on Industrial Ophthalmology.—This Committee has prepared three statements, which have been submitted to THE JOURNAL for publication. They are: "The Effect of Fluorescent Light on Vision," "Use of Water in Emergency Treatment of Chemical Eye Injuries," and "Eye Safety Equipment." Two other documents are in draft form and are not yet ready for publication, namely, "Tonometry in Glaucoma Surveys" and "Guiding Principles and Procedures for Industrial Ophthalmic Nursing."

Committee on Occupational Dermatoses.—Dr. John G Downing, who had been chairman since 1952, resigned and was designated Emeritus Chairman of this Committee. Two reports of the Committee are ready for publication: "Occupational Dermatoses—An Introduction," and "Occupational Dermatoses—Predisposing and Direct Causes."

Committee on Medical Services for Construction Projects.—This new *ad hoc* committee was authorized by the Board of Trustees, on request of the Council, to be composed of Drs. Irving Tabershaw and Joseph Quigley, in order to give their previously written article, "A Guide for Medical Services for Construction Projects," the status of an official Council publication. The article has been seen by the members of the Committee on Scientific Development and is being prepared for the suggestions and approval of the Council for eventual publication in THE JOURNAL and reprinting later.

Joint Committee on Mental Health in Industry.—In line with an agreement reached by the Council on Mental Health and the Council on Industrial Health, after studies and discussions initiated some years ago by the Council secretaries, the two Councils requested the Board of Trustees for authority to establish this joint Committee. This authority was granted in February and, with the Board's approval, the Committee was formed. It plans to meet in November on the occasion of the meeting of the Council on Mental Health with the state mental health representatives. It is expected that this Committee will in good time bring to bear effective medical, joint psychiatric and occupational medical, leadership in the solution in industry of such mental health problems as alcoholism, interpersonal frictions, and proper placement and utilization for maximum productivity of individuals who are emotionally or mentally disturbed.

Committee on Health Programs for Hospital Personnel.—This Joint Committee of the American Hospital Association and the American Medical Association (represented by the Council on Industrial Health) has completed its "Guiding Principles for an Occupational Health Program in a Hospital Employee Group," and the Committee has now been discharged. The Guide has been approved by both parent groups and was published in the Feb. 15, 1958, issue of THE JOURNAL as well as in *Hospitals*, the Journal of the American Hospital Association. This might pave the way to preparing occupational health guides for other special groups, such as the petroleum, steel, and aviation industries.

Committee on Health Education in Industry.—The Committee studied the matter of health education in industry and reported that it felt that the A. M. A. could not furnish health education materials to millions of workers, and that the Council could use the services of the Bureau of Health Education. The Council accepted the report and discharged the Committee, with the feeling that it had not had such ambitious plans in mind for the Committee. It was felt that perhaps the matter could again be taken up later, or that some one might be added to the staff with abilities in the area of industrial health education.

Council Exhibits and Film

The Council on Industrial Health exhibit entitled "Hazards of Solvents at Home—on the Job" was displayed at the Oklahoma State Medical Society meeting at Oklahoma City during the past year. Plans are now being made to build another Council exhibit. The Council continued to investigate the possibilities of having a film on occupational health, but nothing definite has as yet been advanced.

Staff Activities

During the past year thousands of copies of reprints pertaining to occupational health were supplied to industrial physicians, general practitioners, nurses, and other interested parties. In response to numerous requests from medical and nursing schools, Council publications have been furnished in quantities for use in occupational medicine and nursing instruction. Hundreds of inquiries were answered, some requiring a great deal of literature research. These inquiries concerned a large number of subjects, such as occupational health programs, industrial nursing, industrial hygiene, job health hazards, job and highway safety, physical examination programs, aviation medicine, and preventive medicine in general. Members of the Council and members of the Council's various committees were extremely helpful in providing information for many of the inquiries.

A great deal of staff time was spent in connection with committee activities. Several Council Bulletins were published for the information of its members, and a history covering the Council's activities of the past ten years was prepared.

Joint Activities with A. M. A. Groups

The Council on Industrial Health continued its cooperative efforts with other groups within the A. M. A. In addition to the aforementioned joint activities with the Council on Mental Health, the Council on Industrial Health worked closely with the Committee on Toxicology of the Council on Drugs and with the Council on Medical Service.

The Council on Industrial Health also worked with the Council on Rural Health and occasionally with almost every one of the A. M. A.'s councils, bureaus, and committees. It also contributed staff members' time to staffing A. M. A. Committees and Joint Council Committees.

Cooperation and Liaison with Other Groups

Members of the Council and staff have assisted the American Board of Preventive Medicine in examining candidates for certification in occupational medicine. It has had liaison with approximately 30 other societies, associations, or groups outside of the structure of the A. M. A.

Future Plans of the Council

The Council on Industrial Health has asked for permission to set up a Committee for the Classification of the Pneumoconioses.

The plans for a "Primer" for occupational health programs were put aside for the time being. The Council agreed that such a primer was needed to answer requests for help and guidance from physicians contemplating the establishment of occupational health programs, but that the variety of such programs is so great that the preparation of a primer will require a lot more thought and study. In the meantime, a general letter was prepared as a format to use in writing individualized answers.

The Council plans a comprehensive study of the scope of its future activities. It plans to reactivate and revitalize its committees which have not been active and which are still needed. Within the time available to its limited staff and very busy committee members, the Council will attempt to increase the amount of work its committees turn out.

The Council intends to take stock of its position in the A. M. A. organizational structure in order to see where it can improve its liaison with other councils and committees within the A. M. A. and with outside individuals and organizations interested in occupational health.

The Council intends to evaluate its public relations within its special fields of activity so that more industrial and other interested personnel know of, and make use of, the facilities and knowledge of the Council.

The Council will try, especially, to activate and to make more effective, the Joint Conference with Chairmen of State Medical Society Committees on Industrial Health. It will continue to devote efforts to improving its Annual Congress on Industrial Health.

COUNCIL ON NATIONAL DEFENSE

This report covers the activities of the Council on National Defense for the period July 1, 1957-June 30, 1958.

Meetings and Administrative Actions

During the period covered, the Council and each of its two Committees held two regular meetings. The Council met in Chicago on Oct. 27, 1957, and on May 11, 1958; the Committee on Military Medical Affairs met in Washington, D. C., on Oct. 9-11, 1957, and in Chicago on May 10, 1958; and the Committee on Civil Defense met in Atlanta on Oct. 5-6, 1957, and in Dallas on March 8-9, 1958.

The Executive Committee and other members of the Council met during the Association's 1957 Clinical Session in Boston and its 1958 Annual Meeting in San Francisco. In addition, during the reporting period, Council and Committee members, including the Secretary of the Council, participated in a number of meetings with officials of federal government agencies, state medical societies, and various allied medical and health groups at which problems in the fields of military medicine and civil defense were discussed and views exchanged.

At the 1957 Philadelphia Clinical Session, the Board of Trustees re-elected Dr. Reuben A. Benson of Bremerton, Wash., and Dr. Perrin H. Long of Brooklyn to Council membership for a five-year term to expire Dec. 31, 1962.

Military Medical Activities

At the Washington, D. C., meeting, the Committee on Military Medical Affairs was briefed on various military medical subjects and on organizational and administrative matters within the medical services of the military departments and the U. S. Public Health Service. In separate meetings, the Committee met with Surgeon General Leroy E. Burney, U. S. Public Health Service; Deputy Surgeon General James P. Cooney, U. S. Army, representing Surgeon General Silas B. Hays; Deputy Surgeon General Bruce E. Bradley, U. S. Navy, representing Surgeon General B. W. Hogan; Surgeon General Dan C. Ogle, U. S. Air Force; Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical); Dr. Elmer Hess, Chairman, Health Resources Advisory Committee, Office of Defense Mobilization; and Dr. W. Palmer Dearing, Assistant Director for Health, Office of Defense Mobilization.

At these meetings the federal government representatives outlined the organizational structure, authority, responsibility, and functions of their agencies in medical and health matters and discussed with the Committee some of the problems in their respective areas.

The plan to schedule at least one of its two annual meetings in Washington, D. C., has permitted the Committee on Military Medical Affairs to meet with the top level medical representatives of the several Federal agencies and military departments, thereby promoting friendly discussion of appropriate subjects and maintaining a proper liaison.

The Washington, D. C., executive session of the Committee as well as the Chicago meeting in the spring of 1958 considered and acted upon many matters in the field of military medical affairs. Some of the more important actions are outlined.

Commissioning of Optometrists by the Armed Forces.—In June, 1955, at Atlantic City, the House of Delegates adopted Resolution No. 78 concerning ophthalmologic-optometric relations. Part (3) of the resolving clause of the resolution specifies that the Section on Ophthalmology of the A. M. A. ". . . oppose the commissioning of optometrists as such, by any title, in the Armed Forces, and feel that positive action should be taken to bring about the discontinuance of this practice, and request that the Armed Forces provide full medical eye care for all personnel to the end that no member may be subjected to eye care by nonmedical personnel without direction or supervision by an ophthalmologist . . ."

Again in November, 1956, the House of Delegates reviewed this matter and reaffirmed its position. At the request of the General Manager of the Association, the Council considered this matter and recommended the Board actively support part (3) of Resolution No. 78. The Board approved such action and on Jan. 31, 1958, letters were sent to the Secretary of Defense and the surgeons general of the Army, Navy, and Air Force opposing the commissioning of optometrists because "the diagnosis of disease constitutes the practice of medicine and the professional aspects dealing with the prevention of blindness and the conservation or restoration of vision are problems for medical consideration."

Compensation for Military Physicians.—During the legislative process which culminated in the enactment of Public Law 85-422, approved May 20, 1958, which adjusts the method of computing basic pay for officers and enlisted members of the uniformed services, a reduction of benefits achieved by military medicine under the Medical and Dental Officer Career Incentive Act of 1956 was proposed. It will be recalled that the Cordiner Committee was created in May, 1956, to develop and recommend a program of legislative and administrative measures suitable to attract and retain the combat leadership, scientific, professional, technical, and management skills required by our Armed Forces today and in the future.

It is the Association's view that the special pay provisions of the 1956 Act is largely a method of equalizing earnings to compensate for the long and expensive medical education and the resultant delay in earnings to the medical doctor. It was proposed that the special pay received by medical officers of the Armed Forces be reduced by as much as $100 to $150 monthly in the groups of the most experienced physicians. The proposed reduction would not have resulted in decreased compensation for any medical officer but undoubtedly would have had an adverse effect on the attraction and retention of qualified physicians for the military services. For this reason, the Association in opposition to the proposed reduction made its views known to the Congress.

The Association's position was accepted by Congress and thus prevailed in this matter. Public Law 85-422 did not alter the incentive pay provisions of the Medical and Dental Officer Career Incentive Act of 1956.

Extension of "Doctor-Draft" Act.—In response to the request of the Assistant Secretary of Defense (*Health and Medical*), the Association, in June, 1958, made its position known with respect to the extension of the special provisions of the Universal Military Training and Service Act applicable to medical, dental or allied specialists. This legislation, Public Law 85-62, expires June 30, 1959.

The Assistant Secretary was advised that the Association believes that physicians should be registered and classified in the same manner as other citizens in the same age group;

deferred for educational purposes in the same manner as other registrants; and called to active duty or inducted under the same general provisions as other registrants deferred for educational purposes.

No information was presented to the Association which warranted a change in the views presented to the Congress at the time the bill which became Public Law 85-62 was being considered. At that time, in June, 1957, the Association recommended that "the discriminatory and undemocratic legislation known as the Doctor Draft Act be terminated at the present expiration date, June 30, 1957 . . . (however,) if the demands for the defense and security of our nation are such that, in the opinion of Congress, it is necessary to have a Universal Military Training and Service Act to maintain the strength of our Armed Forces, then one method to insure a sufficient supply of physicians for the Armed Forces would be to enact (this) legislation . . ." In addition, in regard to specialists, categories, the Association recommended that the word "other" be substituted for the word "allied" wherever it appeared in the proposed legislation. This proposal was not adopted by the Congress.

Participation in Local Medical Society Affairs by Physicians in Federal Service.—Because of the variance in local and state society rules and regulations and the frequent change of assignments of medical officers of the several services there is no simple or practical manner in which the Council or its Committee on Military Medical Affairs can implement Resolution No. 29 of the 1957 Philadelphia Clinical Session of the House of Delegates, by assisting in increasing participation of physicians, engaged in Federal medical services, in the affairs of local medical societies. The Reference Committee on Medical Military Affairs at the June, 1958 Annual Meeting in San Francisco urged the members of the House of Delegates to stimulate interest in such participation in their own state and county societies by the best locally acceptable plan.

Reorganization of the Department of Defense.—During several months of the reporting period covered by this annual report, the Congress and the Executive branch of the Government were concerned with the proposed reorganization of the Department of Defense. The Council and its Committee followed the developments of this legislation very closely and kept the General Manager and the Board advised as to the status thereon. Inasmuch as the Association understood that in the reorganization it was contemplated that the position of Assistant Secretary of Defense (Health and Medical) would be downgraded to a position of Assistant to the Secretary, representatives of the Association on several occasions presented its views in vigorous opposition to both the Congress and the Executive branch at the highest levels. In addition, the Chairman of the Council's Committee on Military Medical Affairs testified at hearings on the proposal before the U. S. Senate Committee on Armed Services.

The Association believes that it is in the best interests of the national security, the military medical services and the provision of the best possible health services to the personnel of the Armed Forces that the position of Assistant Secretary of Defense (Health and Medical) be maintained in the Department of Defense with a civilian physician appointed to this position with the advice and consent of the Senate. Experience has clearly demonstrated the need and effectiveness of the Assistant Secretary in the formulation of military medical policy and programs, both administrative and military, of the Department of Defense. Moreover, the incumbent of this position, because of his rank, has received the respect of his opposite numbers in the highest circles in our own government, foreign governments and in the professional and scientific organizations.

To downgrade this position would have a most deleterious effect at all echelons within the defense organization upon the medical and health services of our Armed Forces and upon the morale of military personnel. This would involve medical and health policies and programs at all echelons and command levels throughout the defense organization. The loss of stature and prestige in this position would be reflected in the inter-agency health programs within our own government and in the medical and health relationships between our government and other governments with which we are allied.

The need for health and medical policy coordination at the highest level in the Department of Defense is undeniable.

Military Veterinary Corps.—Since early in 1956 when action was initiated by the Department of Defense to eliminate the functions performed by military veterinarians, the Council has urged the Association to pursue a course of opposition to the elimination of the corps. In 1956 the House of Delegates voted to oppose any elimination of military veterinarians and in May, 1957, this position was reiterated and reaffirmed by the Association. On Oct. 1, 1957, by directive of the Secretary of Defense, certain functions of the veterinarian corps were ordered transferred to the Department of Agriculture and military veterinarians were to be released from active duty, transferred or reassigned. At the request of the Council, the Association sent a letter on Oct. 16, 1957, to Secretary McElroy requesting that the Oct. 1 directive be reconsidered because such action may endanger the health of military personnel. The implementation of the directive was delayed to permit a full study of the subject. The fact that this directive has not been put into effect to date coupled with the fact that, under the Department of Defense Reorganization Act of 1958, it will be more difficult for the Secretary, should he so desire, to abolish the veterinary corps than was possible before enactment of the legislation, may indicate that the military veterinary corps will not be abolished as initially contemplated.

Survey of Discharged Medical Personnel.—The Council has continued to conduct an opinion survey among physicians being released from active military service to obtain information on the utilization of physicians and medical staffing conditions in the Armed Forces. From June, 1952 to July, 1958, the Council has distributed 20,222 questionnaires, of which 13,518 were filled out and returned. Summary results of the survey are periodically compiled and published in THE JOURNAL, and copies of the reports are sent to the military departments.

Placement Assistance.—Another continuing program operated by the Council assists physicians being released from active military service by providing information on available civilian medical opportunities. This program has been well received by the participating physicians. Up to July, 1958, the Council has sent letters outlining the program to 18,656 physicians and received 5,186 replies, of which 3,480 were from physicians who requested and were given placement assistance.

Liaison with Physicians on Active Military Duty.—Since January, 1954, the Council has prepared a monthly article for publication in the *United States Armed Forces Medical Journal.* This activity was undertaken to establish and maintain liaison between the Association and physicians in uniform. In this reporting period, these articles have covered such subjects as the summary of survey reports of physicians leaving military service, activities of the AMA councils, reports on proposed and enacted legislation of the 85th Congress, problems of the aging, report on actions at the Association's Annual Meeting and Clinical Session, the Asian influenza epidemic, the revisions of the Principles of Medical Ethics, and medical education of Armed Forces personnel.

Medical Civil Defense Activities

In the fall of 1957, the Council's Committee on Civil Defense, recognizing the need for closer and more effective liaison on medical civil defense matters at state, regional, and national levels, initiated the practice of meeting in each of the seven Federal Civil Defense Administration Regions.

Two-day meetings are held. On the first day the Committee meets with the executive secretary of the medical society of each state in the region, the chairman of each state society's emergency medical service committee, the chairman of the committee on civil defense of the woman's auxiliary to each state society, and the FCDA regional medical officer. The second day is devoted to an executive session meeting of the Committee.

The two regional meetings thus far have been very successful. The exchange of ideas and information and the discussion of common problems at such meetings have proved to be most helpful in the coordination of medical civil defense efforts. They have also stimulated further action at state and local society level.

The first regional meeting was held in FCDA Region III in Atlanta, Ga., in October, 1957. This region comprises the states of Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee. The second meeting was held in Dallas, Texas, in FCDA Region V in March, 1958. The states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas are in this region.

By means of these meetings, as well as meetings with FCDA and the officials of other federal government agencies, effective liaison is maintained by the Committee on Civil Defense at state and national levels. In addition, some of the other more important accomplishments in the field *of medical civil defense activities follow.*

Central Repository of Medical Credentials.—In September, 1957, the World Medical Association requested the endorsement of the American Medical Association of the proposal for a Central Repository of Medical Credentials. The proposal anticipates a service to assure physicians throughout the world who avail themselves of the service that they always will be able to prove themselves medically trained and fully accredited to practice medicine. The Board of Trustees in October, 1957, favorably received the recommendation of the Council and approved in principle the idea of a Central Repository for Medical Credentials and recommended that the World Medical Association do all possible to implement the proposal. Later, at the Annual Meeting in San Francisco, the Board voted to request the WMA, United States Committee, Inc. to take complete charge of all procedures connected with the utilization of the Repository by physicians of the United States. The Council has offered to assist the WMA in every way possible to acquaint United States physicians with the facilities available through the central repository and its offer has been accepted.

Proposed FCDA Delegation of Certain Responsibilities for Civil Defense Health Services.—In January, 1958, the FCDA advised the Association that a further assignment of civil defense health services from the FCDA to the Department of Health, Education, and Welfare, for discharge by the Public Health Service, was being considered. The Association's concurrence in the principle of the proposed delegation was requested prior to the initiation of formal negotiations between the FCDA and the Department of HEW.

Upon initial review of the proposed delegation, the Council and its Committee on Civil Defense were disturbed with the manner of the delegation where, in planning a nationwide health and medical care program, there was no clear provision *for the active participation of the states,* political subdivisions, and other organizations and agencies concerned with the health and medical care of the population surviving an enemy attack on the United States. However, at a meeting of the Committee in April, 1958, in Washington, D. C., *with FCDA and USPHS officials,* the Association was assured that the maximum use of all resources at local, state, and national levels was needed and that the support, advice, and participation of the political entities and health and medical groups will be requested *as it was absolutely essential for such groups to assist in* the planning features of the program.

In view of this clarification, the FCDA was advised in June that the Association concurs in the principle of the proposed delegation provided it is specified that the states, local political subdivisions thereof, and other organizations and agencies concerned with the health of the population surviving an enemy attack on the United States will be afforded an opportunity to participate actively in and otherwise contribute to the planning, preparation, and implementation of the contemplated nationwide health and medical care program designed to utilize nonfederal facilities and resources.

Elevation in FCDA of Health and Medical Affairs Position.—In June, 1954, the Association's House of Delegates adopted a resolution requesting the Administrator of the FCDA to re-examine the position of the Health Division and to elevate that Division to a stature commensurate with its obligations and responsibilities. The health and medical aspects of federal civil defense planning have never occupied the authority, responsibility, and organizational status they deserve and, for a number of years, the Council has urged and the Association has made strong representa*tions to elevate the Health Office of FCDA.* Under a reorganization plan effective Nov. 1, 1957, the Health Office of FCDA was abolished and the health and medical activities of that office were fragmentized throughout the new organizational structure of FCDA. On Nov. 7, 1957, Dr. *Hugh H. Hussey Jr., Dr. Harold C. Lueth, and* Association staff members met with Administrator Hoegh to explain the need for a position in the FCDA organizational structure comparable to that in the Department of Defense which has an Assistant Secretary of Defense (Health and Medical) and in the Office of Defense Mobilization which has an Assistant Director for Health. Administrator Hoegh expressed interest in the request and the reasons advanced thereto. In the December, 1957, reorganization of the FCDA the new position of Assistant Administrator, Health and Medical Affairs was created.

Consolidation of FCDA and ODM.—The President's Reorganization Plan No. 1 of 1958 provides that the Federal Civil Defense Administration and the Office of Defense Mobilization be consolidated into a new agency in the Executive Office of the President known as the Office of Defense and Civilian Mobilization.

In June, 1956, the House of Delegates approved the broad objective of strengthening the federal civil defense program but was of the opinion that the method of accomplishment was a matter for determination by the Congress with the advice and assistance of the President and the state governments.

At the time the Plan was before the Senate and House Committees on Government Operations for consideration. the Association advised the Committees that it was concerned with the status, in any federal agency, of the office responsible for medical and health activities in that medical and health activities is one of the most, if not the most, important functions in sustaining the basic concept of national mobilization which is accepted as the "will of the people to resist."

To accomplish this, the Association, in a communication to each Committee, emphasized that the medical and health functions of the civil defense program merit stature and prestige commensurate with the duties and responsibilities which must be assumed. It was pointed out that within ODM there is a position of Assistant Director for Health and a Civilian Resources Advisory Committee and that within FCDA there is a position of Assistant Administrator, Health and Medical Affairs, and that the Association believes that the health and medical functions of both agencies must be maintained at top level in the organization of the proposed Office of Defense and Civilian Mobilization. The *Association expressed its* confidence that the Committees in furtherance of the serious efforts to strengthen the civil defense and mobilization program of our country would give this matter of medical and health affairs the urgent and earnest attention which it merits.

Reorganization Plan No. 1 of 1958 was not rejected by either the Senate or the House and, consequently, under the terms of the Plan, is effective July 1, 1958. The health and medical affairs position in the organizational structure of the new agency had not been established at the time ODCM assumed the functions of FCDA and ODM.

National Medical Civil Defense Conference.—The Council sponsored its sixth annual National Medical Civil Defense Conference in San Francisco on June 21, 1958, prior to the opening of the Association's 107th Annual Meeting. The conference was attended by 229 persons from 40 states, the District of Columbia, Hawaii, Alaska and the Panama Canal Zone. Dr. Gunnar Gundersen, the then President-elect, welcomed the conferees on behalf of the Association.

High ranking officials of the Federal Government presented reports pertaining to governmental activity concerned with civil defense. Among the highlights were the presentations by FCDA Administrator Leo A. Hoegh and Congressman R. Walter Riehlman. Governor Hoegh outlined some of the plans and current concepts of the FCDA while Congressman Riehlman discussed the Congressional program to strengthen our civil defense efforts. Another well received feature of the program was the panel discussion on "The Civil Defense Role of Civilian Physicians in Support of a Civil Emergency" by the deputy surgeon general of the U. S. Public Health Service and the surgeons general of the Departments of the Army and Air Force and the assistant chief for personnel and professional operations in the Bureau of Medicine and Surgery of the Department of the Navy. Various other civil defense topics were presented by physicians who are active in this field in their state and county medical societies.

County Medical Societies Civil Defense Conference.—The eighth annual conference sponsored by the Council for the civil defense organizations of the county medical societies was held in Chicago, Illinois, on Nov. 9-10, 1957. Participating were 155 persons from 34 states, the District of Columbia, and Canada.

The purpose of the conference is to assist medical and health personnel at the local level to plan and train to render the services which will be required in disaster situations or a civil defense emergency. Congresswoman Martha W. Griffiths of Michigan, a member of the House Committee on Government Operations, reported on the status of proposed federal civil defense legislation. Other highlights of the conference were reports on the experience gained through several test operational exercises conducted under simulated disaster conditions, including a critique of the national exercise "Operation Alert." Reports were also given on such subjects as general preparedness planning, hospital operational preparedness, the role of the county medical society, radiological aspects of radiation fall-out, the A. M. A.-FCDA study project, and the A. M. A. program on Asian influenza. In addition, the participants divided into groups to consider problems and recommended courses of action in such emergency situations as a small localized disaster such as a train wreck, plant fire, or collapsed building; a natural disaster such as a flood, hurricane, tornado, or large fire; a disaster in a nature of an epidemic, including bacterial and chemical attack hazards; and large-scale disasters involving radiation hazards such as a reactor plant explosion, sabotage, or enemy attack.

Other Council Activities

Commission on a National Emergency Medical Care Plan.—As outlined in the last annual report, under the terms of a contract with the Federal Civil Defense Administration, the American Medical Association is to "study, develop and recommend the planning, training and operational program needed as a basis for a National Emergency Medical Care Plan for the treatment and care of casualties and noncasualties prior to, during and after a hypothetical 20 megaton ground burst thermonuclear attack upon a selected geographical area or areas in the United States." To facilitate work on this project, the Association created the Commission on a National Emergency Medical Care Plan. The six members designated to serve on the Commission are Dr. Harold C. Lueth, Evanston, Ill., Chairman, and Drs. Carroll P. Hungate, Kansas City, Mo., John F. Burton, Oklahoma City, Robert L. Novy, Detroit, Hanns C. Schwyzer, St. Paul, and Karl R. Lundeberg, Minneapolis. Dr. Earle Standlee of Dallas is the Staff Director.

During this reporting year, representatives of the Association met in Chicago with representatives of several medical and allied organizations to discuss methods of accomplishing the project. Organizations represented were the American College of Surgeons, American Dental Association, American Hospital Association, American Nurses Association, National League for Nursing, American Public Health Association, and American Veterinary Medical Association. As a result of this meeting, three task forces were created. These are Organization, Emergency Medical Care, and Personnel Training and Utilization. At the invitation of the Commission, the above mentioned organizations designated various Task Force representatives.

It is anticipated that the draft report of each Task Force will be submitted to the full Commission sometime in August or September. Concurrently, a report of the field study phase in the Minneapolis-St. Paul area, which was outlined in the last annual report, should be completed by staff members of the Commission. The Commission will submit a report of the completed study project to the Council for its review and referral to the Board of Trustees with its recommendations. It is anticipated that the study project will be completed in November, 1958, in accordance with the terms of the contract.

An interim report on the activities of the Commission was submitted by the Council to the Board of Trustees who, in turn, distributed it to each member of the House of Delegates at the 1958 Annual Meeting of the Association in San Francisco.

The National Space Program.—Because of the enormous medical implications inherent in the national space program, the Council in May, 1958, proposed that the Board of Trustees designate a "responsible agency of the Board" to follow the developments of the several federal government programs. The Council felt that the Association should be prepared to take the initiative in developing sound medical policies relating to the organization, administration, and professional capabilities in such a program.

On May 30 the Board named a committee composed of Drs. Leonard W. Larson, chairman, Richard L. Meiling, and Harold C. Lueth to study this subject and report to the Board. At its meeting in June in San Francisco, the Board designated an *Ad Hoc* Committee on Aeronautics and Space with Dr. Larson, chairman, and Drs. Meiling and Lueth as members to advise the Board on the evolution of the government agencies and legislation affecting them in the area of aeronautics and space. Staffing of the Committee will be undertaken by the Council on National Defense.

A. M. A. Asian Influenza Program.—In the fall of 1957, the United States experienced the most extensive influenza epidemic in 40 years. Samplings taken by the U. S. National Health Survey showed that more than 80 million Americans suffered from illness of the upper respiratory tract between July 1 and Dec. 1, 1957, of such severity that they had to spend one or more days in bed.

On June 20, 1957, following several informal meetings between representatives of the Association and the U. S. Public Health Service, the Council's Committee on Civil Defense was designated a Special Committee on Influenza.

The Special Committee, augmented by Drs. Hugh H. Hussey Jr. and James Z. Appel representing the Board, launched a nationwide preparedness program to combat an Asian influenza epidemic. Recognizing the urgent need for sound medical plans and an effective operational organization, as well as advice to the general public as to what to expect and what to do, the A. M. A. program consisted of an operational and an informational phase.

Nine days later, on June 29, packets of informational and scientific material were mailed to all state and county medical societies, members of the House of Delegates, state presidents, chairmen of state emergency medical service committees, and national officers of allied medical and health associations. The medical profession was alerted and urged to take appropriate steps to have stand-by plans and precautionary measures in readiness in each community. Again on Sept. 29, packets of up-to-date material were distributed to these groups.

A series of articles was published in a special column of The Journal to provide the medical profession with historical and scientific data so that the disease could be recognized immediately and properly treated. *Today's Health* carried informational material. Several A. M. A. news releases, as well as the *Secretary's Letter*, were devoted to the Asian influenza story. A. M. A. representatives appeared on radio and TV programs and radio and television spots with information on home care were prepared and distributed.

During this hectic six-month period, the Committee met several times and its members attended numerous meetings with representatives of the PHS and national medical and health associations.

The Surgeon General of the U. S. Public Health Service, Leroy E. Burney, said, "To me, one of the most significant things about our national experience has been the demonstration of how quickly and effectively our national medical and health resources can mobilize to combat the threat of nationwide illness. The keynote of the whole program, in fact, has been the cooperation of the many toward a single goal. I do not know of another instance in our peacetime history in which so many of the elements of our society, in so short a time, have joined together to identify a health problem, determine the means for its solution, and to work toward resolving it."

To this, the Committee agrees wholeheartedly.

Stand-by Program for Dealing with Mass Immunization or Similar Situations.—In February, 1958, the Board of Trustees authorized the Special Committee on Influenza, in cooperation with the Law Department, to proceed with a study and preparation of a stand-by program for future use in dealing with mass immunization or similar situations.

At the first meeting of the Committee on April 22, the problem to be undertaken was defined and an outline of information to be developed was prepared, including a review of some of the programs of the state and county medical societies. A questionnaire is being prepared by two members of the Committee to elicit the desired information. The other members of the Committee were requested to obtain information from various other groups in regard to their experience during the epidemic and to solicit suggestions with respect to a stand-by program.

Joint Committee on Medical Education for National Defense.—The Council was requested to join with the A. M. A. Council on Medical Education and Hospitals and the Association of American Medical Colleges to serve on the Joint Committee on Medical Education for National Defense. The Joint Committee is composed of representatives and staff secretaries from the three groups mentioned above. The purpose of the Joint Committee is to work together in conference and consultation concerning the role of colleges of medicine in relation to the national defense effort in peace and under wartime conditions. Such topics as the drafting of physicians, essential faculty, acceleration programs, relocation of medical schools, student participation and the operation of MEND programs are a part of the basic problem to be developed.

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Annual Meeting—San Francisco

The attendance at the Annual Meeting in San Francisco was the largest ever registered in that City for a meeting of the American Medical Association. The headquarters for scientific activities was located at the Civic Auditorium, but most of the meetings were held in other sections of the city. Attendance at Section meetings, in most instances, was very satisfactory.

The General Scientific Lectures presented on Monday afternoon and Tuesday morning were outstanding, and drew capacity audiences. These were arranged by the Council on Scientific Assembly under the chairmanship of Dr. Samuel P. Newman, Denver. The Goldberger lecture was cancelled because of illness in the family of the speaker.

The 21 Sections of the Scientific Assembly held 58 sessions, in addition to five sessions by the Association for Research in Ophthalmology. On six occasions two Sections met in joint session. There were 31 panel discussions and symposiums, marking the trend away from the essay type of lecture; in fact, most of the talks carried the names of two to five authors. The Section Secretaries are to be commended for the excellent programs which they arranged.

Color television originated at San Francisco Hospital and was carried to Civic Auditorium by closed circuit. Operative surgical panels were shown each morning and clinics each afternoon, under the chairmanship of Dr. John B. Schaupp, San Francisco. The telecasts were presented with the cooperation of Smith, Kline & French Laboratories, Philadelphia.

Motion pictures were presented continuously throughout the week in Civic Auditorium to capacity audiences. There were 64 films covering all phases of medicine, with the author present to discuss the subject in many instances.

Two evening programs were presented. Grand Rounds closed circuit television was carried to seven cities located from Chicago to New York, showing the highlights of the San Francisco meeting, and presenting a clinical session on The Current Therapy of Diabetes, emanating from the University of California School of Medicine. The feature was sponsored by The Upjohn Company, Kalamazoo, Mich. A special evening of motion pictures dealing with "Medicine and the Law" was carried out with the cooperation of Wm. S. Merrell Company. The film was a joint undertaking of the American Medical Association and the American Bar Association.

The Scientific Exhibit in Civic Auditorium featured groups of 295 exhibits from the various Sections of the Scientific Assembly, arranged with the cooperation of the Section Representatives to the Scientific Exhibit. In addition, 27 exhibits were presented as special features. A group of exhibits on arthritis and rheumatism was shown under a committee of which Dr. John R. Sigler, Detroit, was chairman. Perinatal problems were presented with the cooperation of the Sections on Anesthesiology, Pediatrics, and Obstetrics and Gynecology by a committee of which Dr. Hulda E. Thelander, San Francisco, was chairman. The Special Exhibit on Fractures, presented under the auspices of a committee of which Dr. Ralph G. Carothers, Cincinnati, was chairman, was again an outstanding success. The Special Exhibit on Fresh Tissue Pathology was sponsored by the Section on Pathology and Physiology, with Dr. Hamilton R. Fishback, Berkeley, California, chairman. The Special Exhibit on Pulmonary Function was sponsored by the Section on Diseases of the Chest under a committee of which Dr. George R. Meneely, Nashville, Tenn., was chairman. The history of medicine was featured by exhibits presented with the cooperation of Parke Davis and Company, Detroit; E. R. Squibb and Sons, New York, and the Army and Navy under the Section on Military Medicine. Physical examinations of physicians were again sponsored by the Section on General Practice, with the assistance of the X-ray Department, General Electric Company and the Sanborn Company. Dr. Charles E. McArthur, Olympia, Wash., wa chairman. Conferences on diet were presented with the guidance of the Council on Foods and Nutrition of the American Medical Association. Two exhibits from the National Science Fair were presented with the cooperation of the A. M. A. Public Relations Department, while two exhibits from the Student A. M. A. were sponsored by Lakeside Laboratories, Milwaukee.

Credit for attending the meeting was given to acti and reserve officers of the Army, Navy, and Air Force. Similarly, credit in Category I was given by the American Academy of General Practice to its members who were present in San Francisco.

Sixty exhibits received awards, consisting of 6 medals, 22 certificates of merit, and 32 honorable mentions. In addition two certificates of merit were presented for medical illustration and for medical photography. The chairman of the Committee on Awards was Dr. Frank B. Queen, Portland, Ore. In addition, the Section on Urology presented the John Morrissey award and the Section on Ophthalmology an award of $250.

The Council on Scientific Assembly wishes to express its appreciation to the 1,914 participants on the scientific program, as well as to the Section officers and speci committees.

Motion Pictures and Medical Television

Film Library.—The film library has been completely r organized and brought up-to-date with a new card file an numbering system initiated. Film subjects in the libra were also surveyed resulting in the withdrawal of sever out-dated and seldom used films. During the past year, new film subjects were added to the library making total of 954 prints of 188 subjects. Film shipments medical societies, medical schools, hospital staff group individual physicians and television stations numbered 4,67 representing an increase of 577 shipments over the la year. The income from film service charges was $8,456.4 The above shipments do not include the highly specializ films included in the one-print library. These films, numbering in excess of 150 subjects, are made available on on special request by physicians.

Approximately 29% of the film distribution is now devoted to prints placed in the library over the years other bureaus and councils. The decrease noted in t number of prints now in the film library is largely due the withdrawal of subjects placed there by other burea and councils which are now out-dated.

In accordance with the Report of the House of Del gates at the 1957 Philadelphia Meeting, seven outstandi foreign-made films have been added to the film libra and have since enjoyed wide circulation. These films, ma in Czechoslovakia, England, Japan, and Australia, were i cluded in the film program at the Annual Meeting in S Francisco. Consideration is being given also to other f eign-made films which reviewers feel should be ma available to physicians in this country.

Film Reviews.—In cooperation with specialists in vario fields of medicine, surgery and health education, 69 revie of medical and health films were published in THE JOURN and 13 health film reviews were prepared for publicati in *Today's Health*. At the request of the editor of *Toda Health*, the reviews of health films which have appear in that publication in the past have been discontinued.

As a special feature of THE JOURNAL, eight illustrat reviews of outstanding films were also prepared and pu lished. These illustrated film reviews have been very w received as evidenced by the number of letters receiv from physician readers of THE JOURNAL, and also by t large number of reprints which have been ordered a distributed by the authors.

The long term cooperative reviewing project with the Educational Committee of the American Academy of Pediatrics has continued and a catalog is now being prepared which will list approximately 250 films approved and recommended by the committee.

Source File.—Additional Kardex files were added during the year to accommodate the ever-growing film source file. As one of the largest files of films produced for the medical profession, it now contains data on over 4,500 films, including date of production, description, and availability. This source file was used in answering 1,300 requests for film information during the year.

Medical Television.—This department continues to serve as an information center for inquiries on the latest equipment, advances, and use of the television medium as a teaching tool for the medical profession. Cooperation in several open and closed circuit television programs included the Upjohn Company's "Grand Rounds No. 7"; The Merck, Sharp and Dohme program during the Annual Meeting, "The Daily Bulletin of the Air"; and the Smith, Kline & French color television program at both the Annual and Clinical Meetings.

Miscellaneous Activities.—Due to the fact that the Film Council of America is no longer in existence, a special committee on International Non-Theatrical Events to determine United States policy of participation in international film festivals was originated in Washington, D. C. The Director was asked to serve on this Committee, representing the medical and dental fields. The purpose of the Committee is not only to determine policy participation, but also to nominate for showing current and outstanding films produced in this country. Composed of eight representatives in the major areas where films are utilized, the Committee meets in Washington to act in connection with international film events.

Cooperation was extended to the International College of Surgeons in Brussels, Belgium, May, 1958, in organizing its film program. Arrangements were made for the selection and shipment of program films from this country, including 10 from our library.

For the first time in the history of the World Medical Association, a film program will be a part of the 12th General Assembly to be held in Copenhagen, Denmark, August, 1958. The film program was organized by the Director. Films from six countries will be included on the daily programs. A film symposium will also be held on the subject of proctology. In most cases, the authors of the films will be present to appear on the programs. This program is being presented by the World Medical Association in cooperation with the American Medical Association and Johnson & Johnson International.

Two film programs were organized in connection with the International Film Festival to be held in Edinburgh, Scotland, in August. During this meeting the Director will address an audience of health educators and motion picture producers on the subject of "The Use of Health Films in the U. S." At that time, he will show films on the subject of health education for lay audiences, which have been found to be particularly effective in this country. He will also address the faculty of the University of Edinburgh School of Medicine on "Motion Pictures and Television in Medical Education." A special program of professional films selected from this country will be shown at the University.

A film on career opportunities in medicine and health, entitled "Helping Hands for Julie" was completed and premiered during American Hospital Week. This film, produced in cooperation with the American Hospital Association and E. R. Squibb and Sons, was designed to motivate high school students to think in terms of choosing a health career. A special showing was arranged by the Woman's Auxiliary of the A. M. A. during the Annual Meeting in San Francisco. One hundred eighty-five copies of "Helping Hands for Julie" have been deposited by E. R. Squibb and Sons with Association Films, Inc., for distribution to high schools, church groups, and community organizations. The film will be released also for television showings. Requests for 56 television prints are now on file, and 11 requests have been received from schools and institutions which would like to purchase a print for their library.

The Director was asked to repeat a course on problems in basic film production at the American Academy of Orthopedic Surgeons held in New York in February. This special course was initiated at the 1957 Annual Meeting and met with a great deal of popularity. For that reason, the course was expanded and again presented for the benefit of the orthopedic surgeons attending the meeting.

Publications included Review Booklet No. 9 containing all reviews appearing in THE JOURNAL during the calendar year of 1957 as well as a new catalog listing all films available from the film library.

BUREAU OF EXHIBITS

Over the past few years a concerted effort has been made to establish a planned program for the development of exhibits designed for public showing at health fairs, expositions, county and state fairs, and other similar types of gatherings.

Health Exhibits.—The exhibits in this planned program are built around the standard chapters found in many anatomy and physiology textbooks. The wisdom of this act has been demonstrated by actual reports from officers and executives of the state and county medical societies, who are the primary users of the exhibits.

In order to determine to what extent the exhibits are viewed and participated in by visitors, counters and other devices are incorporated in the exhibits. Mechanical counters incorporated in one exhibit, "We See," had 55,346 participants at one exposition and 49,500 at another.

Exhibits added during the past year in the continuance of the planned program include "How We Breathe," "Your Glands," "Your Body," and "Digestion." Others completed during the year were exhibits on: "Poisoning of Children in the Home," "You Can Reduce," "Nutrition Nonsense and Food Quackery," and "Seven Paths to Fitness."

An exhibit on the brain and nervous system has been completed through the blueprint and preparatory stages and is ready for construction. An exhibit on the skin is well advanced.

During the past year it has been necessary to decline 96 requests for the use of Association exhibits for 30 different exhibits. The demands far exceed availability.

The Association has a total of 63 exhibits that are available for loan to state and county medical societies. These exhibits were shown in 30 different states in the United States and the Territory of Hawaii, and at 159 locations, for a total of 967 showing days.

Medical Exhibits.—The medical exhibits of the Association were shown at 6 state medical society meetings and at 12 meetings of groups allied to medicine.

Health Fairs.—State and county medical societies continue to show interest in health fairs. Health fairs and health days were presented this year in Pennsylvania, Oregon, New York, Ohio, Illinois, and planned to continue

Museums.—The Association h
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BUREAU OF HEALTH EDUCATION

This report covers the latter half of the 25th and the first half of the 26th year of incumbency of the present Director, who is the fourth individual to hold this position.

Administrative and Personnel

No significant changes occurred in the organization of the Bureau, nor in its personnel. We have had the good fortune to have a very small turnover of clerical staff and our professional staff has remained intact.

Following are the principal areas of emphasis in the work of the Bureau in the year just closed.

Fitness of American Youth

This activity was reported in the 1957 report. The only new features to be recorded now are the holding of a Conference at West Point, Sept. 9-10, 1957, which was attended by the Director of the Bureau in his capacity as a member of the President's Citizens' Advisory Committee on the Fitness of American Youth.

This meeting was much like the one held in June, 1956, at Annapolis. Many of the same individuals were present and the same interests were represented, namely physical education, general education, media of mass communication, athletics, sports, commercial interests, medicine, dentistry, public health, and youth-serving and character-building organizations. Members of this Advisory Committee are appointed as individuals, not as representatives of organizations. Nevertheless, there can be no separation between the interests of these members and their organizational identification in the professions or in business.

The West Point meeting differed from that at Annapolis in that the meeting at West Point was a meeting of the President's Council on Youth Fitness with the Advisory Committee, which according to Executive order of the President, is required once a year. The five cabinet officials who are members of the Council did not appear, with the exception of Secretary Benson, of the Department of Agriculture. The rest was represented by under-secretaries or other designated persons. The meeting consisted largely of discussion groups, with a few summarizing sessions.

In general, the same conclusions were reached as at the Annapolis meeting, namely:

(a) The health status of American youth is essentially good but there are areas where improvement is desirable and a few areas where it is immediately imperative.

(b) The fitness of American youth or of adults, for that matter, embraces not only physical, but mental, moral, spiritual and social fitness.

(c) The greatest apparent lack at this time is in the physical area and, therefore, more attention should be focused on this.

(d) A program of greater activity and less sedentary living, especially for youth, seems desirable to improve the fitness of the nation.

(e) Such a program should be implemented through existing organizations and largely at the local level.

(f) No need exists for a super-agency at the federal level beyond the function of advising, stimulating, and helping to correlate; this function is to be performed

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largely around this theme. The American Medical Association included in its annual meeting program, at San Francisco, a symposium having to do with fitness, athletics, and related interests. Many other agencies are paying increased attention to fitness, and especially to physical fitness and encouragement of activity programs.

Some controversy has developed over the question of promulgating standards. Headed by *Sports Illustrated* magazine, a group of athletes and physical educators, which seems to believe in standards, has pressured the Council to engage in the development and promulgation of standards of fitness to be applied periodically to all young people. This pressure has been countered by opposition from the medical profession, most general educators and a considerable number of physical educators. It is not clear at this writing whether the majority of physical educators favors standards or opposes them. There are several sets of standards in process of development by physical education groups and unquestionably, this topic will be a principal source of discussion, if not contention, at the second meeting of the President's Council on Youth Fitness with the Citizens' Advisory Committee, now scheduled for Sept. 9-10, 1958.

The Bureau has published a pamphlet, drawn from medical literature, on the benefits of exercise, and one giving the perspective which shows that the medical profession has been interested in physical fitness long before the present splurge of public interest. These pamphlets have been distributed to all members of the President's Citizens Advisory Committee, as well as widely in other areas. The one on exercise is being reprinted by the Council and will be made available through the Government Printing Office.

The Journal of the American Medical Association has published two editorials discussing the question of fitness. Many state conferences have been held in which state medical societies have participated. In at least one instance, the state society was alerted, through the offices of the American Medical Association, to a proposed fitness conference to which no representatives of the state medical society had been invited by the state governor.

The program on fitness continues to have the backing of the President of the United States and it will attract a great deal of attention as long as this is so. It offers a tempting opportunity for self-promoters and nonscientific zealots to promulgate their ideas. The members of the President's Council at the cabinet level and the members of the Citizens Advisory Committee need professional support, especially from doctors and educators, in keeping this program on a sane and sensible basis.

During the year, the Vice-President of the United States retired from the chairmanship of the Council and this post was given to the Secretary of the Interior. Other cabinet members who constitute the Council are the Secretary of Defense, the Secretary of Health, Education, and Welfare, the Secretary of Agriculture, and the Secretary of Labor.

Pamphlet Distribution

The number of pamphlets distributed by the Bureau and through the Order Department reached a total of 525,172 during the year covered by this report. This sounds like a considerable number but actually the distribution of our pamphlets is the weakest link in the entire pamphlet operation. We have no sales channels through which quantities of pamphlets can be distributed consistently. At the same time, we have an educational opportunity to keep a pamphlet supply which will be useful to those who seek our help in educational circles and among homemakers.

Questions and Answers

During the 12-month period ending June 30, 1958, we answered a total of 15,968 (16,129) letters. (Last year's figures are in parentheses.) The leading subject of interest was plastic surgery, which brought 2,075 (3,232) requests for information and literature. This was stimulated in part by several articles in consumer publications which mentioned the Bureau as a source of information.

The second highest number of requests was for material on the human body. These totaled 1,883 (472). This subject had not been of primary significance in the past few years. Medical guidance, which was the subject of second greatest interest in the 1956-1957 report, dropped to eighth place.

In third place were 1,780 (863) requests for sex education material. This was in fourth place in the previous report.

The fouth subject of leading interest was nutrition, 1,541 (414). This was believed due at least in part to a new series on nutrition, consisting of 12 articles reprinted from *Today's Health* during the period covered by this report.

Following in order of popularity were safety, 1,200; mental health, 1,066; medical practice, 788; medical guidance, 768; public health, 761; heart, 750; hair and skin, 701; drugs, 646; alcohol, tobacco, and narcotics, 569; communicable diseases, 454; circulatory system, 322; glands, 266; bones, 223; and cancer, 160.

Special mailing of packets of free material to school teachers totaled 6,263 (1,489). The increase is believed to have been due in large part to increased attendance of Bureau personnel at workshops and teachers' conventions. There were 2,858 (2,003) catalogs mailed in response to separate requests.

The *Today's Health* column, "That's a Good Question," contained 107 articles, 81 prepared by the Bureau, 21 by the Council on Foods and Nutrition, and 5 by the American Dental Association.

Loan Collections

Requests for special material to assist physicians who are preparing discussions for lay audiences have remained at a rather constant level. For the current period, these total 20 (14). Since interest is still demonstrated in this service, it is continuing to be made available. Flexibility of our procedure in handling such requests permits its satisfactory operation regardless of volume.

Sources of inquiry for the period ending June 30, 1958, were 18 physicians; 1 county Medical Society; 1 nurse.

Principal interest was in material dealing with mental hygiene, cancer, and safety.

Radio and Television

Radio.—There has been no change in the situation, discussed at length in last year's report, which sees radio continuing to grow in importance despite the popularity of television. The Bureau, therefore, continues to recommend radio coverage on behalf of the Association.

Radio, however, is undergoing extensive changes. There are almost no 30-minute radio broadcasts any more, such as used to constitute the backbone of radio programming. Network radio, likewise, has undergone a great change. In place of the short independent programs, we now have such efforts as Monitor, which runs practically through an entire week-end and consists of brief presentations of numerous and diversified interests. Such programming can be likened to a newspaper page of various articles on a multiplicity of subjects, rather than to a magazine in which articles of considerable length occupy a number of pages.

The smaller radio stations are now devoting their time more and more to news, music and sports. This means a complete rethinking of all radio presentations. For many years we have been successful with 13-program series, 15-minutes each, devoted to a given subject and devised to be broadcast once a week at a specified time. This sort of programming will no longer serve us. We must now recognize the new trend if we are to be heard on radio. This trend is to news, music, and sports and with a strong tendency toward brevity.

We have recognized the new look in radio by changing our techniques for 1958. We did produce two 13-program series which were already in the works in 1957.

All music used on these series, as well as all others, has been cleared at the source. This has been made possible by a special arrangement negotiated with ASCAP (American Society of Composers, Authors and Publishers) by the Marshall Organization. ASCAP controls copyrights on current music and charges a royalty for each performance. This arrangement was impractical for the American Medical Association because our distribution is through county medical societies, and it would have posed a very difficult problem to get an accurate account of how many performances actually were made of any given piece of music used. The Marshall Organization succeeded in making an agreement with ASCAP whereby permission for use of a given piece of music could be paid for in one sum in advance. This has opened for our use the tremendous resources of modern, popular music, whereas previously we had been limited to the classics, or at least to music more than 56 years old; this figure represents the renewable copyright periods. In most instances, in order to be absolutely certain that there would be no infringements, we were compelled to use only the music of composers who had been dead for at least 56 years.

In line with the new trend in radio we launched, on Feb. 1, 1958, an entirely new program format called "Health Magazine of the Air." This is based on the A. M. A.'s health magazine, *Today's Health*. It is a 15-minute narration type of program derived from articles in each issue of *Today's Health* and aired at approximately the time the magazine appears on the newsstands. This program is written by an experienced radio script writer, who receives the advance proofs of the magazine as soon as they are available.

The program is narrated by H. V. Kaltenborn, dean of American news analysts, and well known conservative commentator on politics and world events. Mr. Kaltenborn's characteristically energetic, intelligent, and humorous narrations and commentaries have gained him a world-wide reputation. We have been extremely fortunate in getting his services through the Marshall Organization. Each program includes one or two questions from *Today's Health*, which Mr. Kaltenborn asks and which are answered by the Director of the Bureau.

"Health Magazine of the Air" was distributed at the close of this report year to approximately 500 local radio stations. A postcard survey of the utilization of this program and station reactions brought approximately 150 responses, from which we are able to estimate that the program was aired by from 90 to 95% of the stations receiving it.

Each of these health magazine programs uses one side of a transcription disc. In order not to waste the other side, it was decided to try to supply the stations with so-called spot announcements. These are briefs, ranging from 20 seconds to one minute, which can be used by the station at any time when there is air time to fill. In order to give special interest to these announcements, an effort was made to have them narrated by popular personalities in the theatrical and sports fields. The Marshall Organization was able to get the cooperation, gratis, of the following personalities to make the respective announcements: February, Peggy Wood; March, Henry Fonda; April, Douglas Fairbanks Jr.; May, Ralph Bellamy; June, Patti Page; July, Tyrone Power.

"Health Magazine of the Air" is planned to continue through the calendar year 1958.

Television.—The television story is not so happy. Television is an extremely costly medium. At this time, it is surrounded by a glamour which causes many persons to overestimate its importance and to misinterpret the means for using it.

The Bureau of Health Education has explored many avenues looking toward the development of a successful program in television. An obvious solution and one which was tried early was the preparation of scripts for local use. It was soon found that the local medical society would not use scripts because they had neither the personnel nor the inclination to invest time in television programming; or having such time and inclination, they preferred to do their own programming.

This latter is a wholesome trend and the Bureau tried to be helpful by developing helps for local television which it titled "TV Tested Televisuals." We have a considerable stock of these, including many charts and pictures and a number of three-dimensional models available for loan. A catalog of these materials has been published. Their availability has been widely publicized through the *Secretary's Letter* and other intra-professional channels. Regrettably, they have not been used to the extent to which they could have been useful. They remain available for any medical society which wishes to use them.

Another effort to be helpful to the local medical society was the development of scripts with film. A television program must have something to look at besides the telecaster. A panel of physicians, sitting before a television camera and talking, is merely a radio program on television and it is not justified because of its ineffectiveness and its greater expense. There must be "visuals." Procuring or preparing these is time-consuming and costly. So we tried to prepare scripts with film. These, also widely publicized, have not been used by local medical societies to any appreciable extent.

The Bureau, under the authorization by the Trustees, participated with the Herbert S. Laufman Company, of Chicago, in 1956 in the making of 52 films on baby care, whose wide showing on a commercial basis has previously been reported. During the past year, the Bureau purchased limited rights for the use of 13 of these films by county medical societies, and they have had a considerable currency, namely 1,069 showings. The contract expired as of June 1, 1958, and could not be renewed because of inadequate funds. If this could have been renewed, the films would have had a still wider exposure.

Under special grants from the Board of Trustees, the Bureau has made one 30-minute film which, after several years of showing, has become outdated and is now being retired; this was "Operation Herbert." The Bureau also made 18 5-minute films entitled "What To Do" (until the doctor comes). These films, dating back to previous years, have had a satisfactory distribution through two film-distributing companies on a non-commercial basis and have been shown on non-commercial time. They have accounted for a total of 318 telecasts.

During the year covered by this report, we made two films, each 15 minutes in length, under the general heading of "Emergency Call." One of these was entitled "Out of Step," and dealt with the misadventures of a father who did not appreciate Boy Scout activities, but who got into trouble as a do-it-yourself operator and was given some wholesome lessons by the Boy Scouts. In true soap opera style, he was converted to scouting and along the way, the viewer got some sound information about first aid. The other film was entitled "The Silent Killer," and dealt with the dangers of carbon monoxide, how to avoid them, and what to do if a victim has become asphyxiated. It is too early yet to know how effective the distribution of these films will be but there is every reason to believe that they will be widely used.

The experience of the Bureau indicates more and more that television by the medical profession is essentially a local function. There are numerous good television programs carried out locally by medical societies, mainly in the larger centers, where large memberships and the availability of full-time personnel make possible the carrying of the detailed and heavy responsibilities of remaining continuously on television. The function of the American Medical Association would seem to be that of standing-by with helps, the exploration of new techniques and the distribution of information of a technical character which will be helpful to local physicians and medical societies employing television.

Annual and Clinical Sessions.—The scientific aspects of the annual meeting of the American Medical Association in San Francisco were covered by the Bureau in the usual manner.

The net result of this was a 38-station western network of the Columbia Broadcasting System broadcasting a daily program Sunday through Thursday, plus numerous other local and network appearances on NBC, CBS, and Mutual for a total of 575 network radio programs and 34 local programs. In addition, 21 television programs were arranged, some on film and some for personal appearances. The three major networks, National, Columbia and Mutual, were serviced with film for their news round-ups. The President of the Association, Dr. Gunnar Gundersen, and the Gold Medal Doctor, Dr. Frank H. Krusen, were filmed with sound for the news round-ups. Many of the programs were put on tape or film and scheduled for various stations in the San Francisco bay area after the close of the meeting.

Health and Fitness

Following World War II, the specialized fitness activities of the Federal Government were very shortly discontinued. This included the dissolution of the government-sponsored Joint Fitness Committee in which the American Medical Association, through appropriate representation had played a prominent role. With the return of peace, the strong motivation which had stimulated activity in the field of fitness was quickly lost.

The Trustees of the American Medical Association, however, feeling that fitness efforts were as important in peace as in wartime, sought a way to continue the contribution of the American Medical Association. Their discussion and consideration eventuated in the creation of the Division of Health and Fitness within the Bureau of Health Education of the Association in 1946. In keeping with the philosophy of the medical profession, the name of the Division, as well as the scope of its operations, was broadened to include all aspects of health and fitness as well as the exercise or physical activity phases.

Since its inception, the Division of Health and Fitness has vigorously prosecuted these concepts as they were originally visualized by the Board of Trustees and the Director of the Bureau of Health Education. Over the years, however, the functions and operations of the Division gradually grew in scope and direction until lately they have been largely concerned with youth fitness as this can be implemented through cooperation with the schools and agencies concerned with the health of school-age children.

Within the last two years there has been renewed interest in fitness, and especially youth fitness, on the part of the federal government. This interest, stimulated by the personal concern of President Eisenhower, has helped to create a climate for action which has enhanced the efforts and advanced the work of the Division. Also, it has shown the wisdom of the 1946 action of the then Board of Trustees and put the Association in a position of leadership in the national present campaign to improve the fitness of youth.

The Health and Fitness Division now staffed by three consultants, Donald A. Dukelow, M.D., Fred V. Hein, Ph.D. and Wallace Ann Wesley, Hs.D., functions as an integral part of the Bureau of Health Education. Consultative services on the medical and educational aspects of health and fitness and particularly policies, practices and problems in school health are offered by this physician and educator team to state and local medical societies, voluntary and governmental agencies in education and public health, colleges and universities, and others concerned with the health of school-aged children.

During the past year the three consultants accepted invitations in 29 states, the District of Columbia and Canada to deliver 99 addresses and to take part in 113 conferences, institutes, annual meetings, and conventions of health education or other organizations and to perform a variety of other services. In nearly every instance, such engagements included several assignments. Altogether the consultants' travel covered 110,720 miles. Demand for consultant services relating to the health and/or fitness of youth has steadily increased until it has become necessary to decline many invitations each year because of travel and time limitations of the staff.

The Sixth National Conference on Physicians and Schools, sponsored by the American Medical Association, was held October 30 to November 2, 1957, under the auspices of the Bureau of Health Education at the Hotel Moraine, Highland Park, Illinois. Fittingly, with the biennial conferences extending over a ten-year period, the theme of the Sixth Conference was "A Decade of Progress Toward Fitness." As was true of the five previous conferences, the Sixth National Conference was an invitational affair. Attending were over 200 representatives of state and territorial medical associations, health departments, education departments, and delegates from a number of national voluntary and governmental health and educational agencies. More than eighty consultants drawn from the professions of medicine, education and public health served as leaders for ten discussion groups concerned directly or indirectly with relationships of the physician to the school health program.

The National Conferences on Physicians and Schools have stimulated many state and local conferences of a similar nature covering school health. The consultants have participated in planning and conducting many of these meetings, and within the limits of available time, their services are available to state associations for such purposes. In this connection, the consultants conducted a limited normative survey of state medical society activities in the field of school health. A previous report covering the same areas of endeavor was published in October, 1955, under the title, "Survey Report of School Health Activities of State Medical Associations." The new survey, based on information supplied by the State Medical Associations, brought the earlier report up to date and summarized recent efforts by constituent state societies in the field of school health.

The medical consultant (Dukelow) completed the first year of his term as a member of the Joint Committee on Health Problems in Education of the National Education and the American Medical Associations with the annual meeting held in March 1958. During this year he has served in the capacity of Secretary to the Committee and was re-elected to the same position. All three consultants provide assistance to the Joint Committee in a number of ways and particularly as technical assistants to the several subcommittees concerned with Joint Committee projects and publications.

One of the educational consultants (Hein) is now serving as the staff secretary for the Association's new Committee on Injury in Sports. This Committee has been active in cooperating with appropriate athletic groups in attempting to safeguard the health and welfare of participants. The same consultant also serves the Board of Trustees' Special Committee on Amphetamines and Athletes in a smilar secretarial capacity.

The medical consultant (Dukelow) serves as a consultant to the Association Committee on Relationships between Medicine and Allied Health Agencies and as liaison between the Committee and the Bureau of Health Education. He also continues to be Health Education Consultant to two committees of the Council on Medical Service—the Committee on Medical Care of the Industrial Worker and the Committee on Maternal and Child Care. All three of these involve interprofessional and inter-agency relations with many medical and public health organizations.

During the current year, as in the past, the Consultants in Health and Fitness have assisted the Bureau Director in the preparation of several transcription series and other radio and television programs. This involves aid in developing ideas, gathering appropriate materials, review of scripts to determine their scientific accuracy and educational implications, and on appropriate occasions, serving as consultants or participants at the time of production.

Health education films and film strips, particularly those used for visual education in the schools, are important educational media. The consultants have advised on the production of films and film strips for classroom instruction in health subjects. In addition, within limitations, they review films for health education of the public and those used for classroom instruction in health to determine their technical accuracy and applicability. In certain instances, the consultants make use of appropriate films from the library of the Committee on Medical Motion Pictures in connection with their Association responsibilities in the field.

Considerable consultant time is given to conferences, meetings, and institutes conducted by universities, teachers' colleges, municipal boards of education, state departments of health and education and other agencies to improve understanding of school health services, school health education and healthful school living and fitness programs. These in-service education projects vary in length from two days to two weeks and are attended by teachers, school administrators, college faculty members, parents, physicians, dentists, nurses, and others concerned with child health.

For the 12th year, the Consultants have prepared discussion questions on the articles in *Today's Health* to aid teachers in using the Association's health magazine as classroom health education material. The questions are developed for each issue, published during the school year, and sent to all interested schools subscribing to *Today's Health.*

Bureau Publications

Pamphlet Production and General Printing.—The Bureau now carries 422 (383) health education pamphlets as regular A. M. A. stock in addition to offering 46 (44) Reading Lists. (Last year's figures are in parentheses.) During the year we added 56 (43) new titles—42 of which were reprinted from *Today's Health:* 5 (0) from THE JOURNAL, and 9 (3) of which were specially written.

Additional printings to replenish the stock were ordered for 44 (43) titles, and 12 (47) titles were discontinued. Four (6) additional *Today's Health* articles were reprinted for the authors or others but not put into A. M. A. stock (See Exhibit A.) Thirteen reprints required special handling because of orders varying from 500 to 5,000 in quantity.

In addition to the pamphlets we had printed 3 (4) new promotion folders for our electrically transcribed radio series, an announcement folder for "The Health Magazine of the Air," radio series and 2 (2) inserts for the Televisuals booklet.

As a service to the Committee on Alcoholism of the A. M. A. Council on Mental Health we compiled their recent series of articles, did the layout and handled the production and printing of "The Manual on Alcoholism."

Meetings and Conferences

The Bureau staff traveled 175,848 (129,881) miles to attend meetings or address audiences in 29 (32) states, the District of Columbia, Canada, and London, England. Audiences numbered 154 (100) and totaled 25,307 (18,652) persons.

Cooperative Relationships

The Director serves as an official representative of the American Medical Association on the seven committees.

United States Government Agencies.—The Bureau continues to cooperate by correspondence or otherwise with government agencies. Materials or information have been furnished during the past year to the 20 government agencies.

Joint Committee on Health Problems in Education, A. M. A.-N. E. A.

On March 10, 11, and 12, 1958 the Joint Committee met in the Conference Room of the National Education Association in Washington, D. C. It meets in the offices of the parent organizations alternately. Since its creation in 1911 the Joint Committee's chief functions have been to give interprofessional consideration to principles and policies affecting the health of children and youth of school age. The Committee's opinion is disseminated through publications distributed by both the National Education Association and the American Medical Association.

BUREAU OF MEDICAL ECONOMIC RESEARCH

The period covered by this annual report is from July 1, 1957, to June 30, 1958. Because the distribution of the Bureau's activities during the past year differed considerably from those of previous years, the organization of this annual report will deviate from reports of previous years.

For the past several years the problem of research associates has loomed large. For two intervals of nine months during the past three years, there was only one research associate on the staff. The first of those two periods ended July 1, 1957 with the employment of Walter Polner, Ph.D. A few months later he was loaned to the Forand Bill Staff Task Force as a full time research associate and has not been available for Bureau research undertakings. In that capacity he prepared articles for the Chronic Illness Newsletter of the Council on Medical Service, an editorial which was used by the Council on National Defense, and had finished three other manuscripts by July 1, 1958. The second period ended on July 1, 1958, when Vaughn D. Bornet, Ph.D., joined the staff as a research associate, although Dr. Polner continues on special assignment outside the Bureau.

The Director has continued to serve on the Advisory Committee to the U. S. Bureau of Labor Statistics on the consumer and wholesale price indexes. Elizabeth Langford of the Bureau of Labor Statistics prepared an article entitled, "Medical Care in the Consumer Price Index, 1936-56," which appeared in the Monthly Labor Review (U. S. Department of Labor, September, 1957). This article pointed out the same general trends as a number of our Bureau publications, namely, that for the entire inflationary period starting about 1940, the subindex based on the sample of physicians' fees priced by the Bureau of Labor Statistics has not risen nearly as rapidly as the entire Consumer Price Index. In the past the Director has waited until fall in order to cover both the price indexes and personal consumption expenditures for medical care; the latter are compiled by the U. S. Department of Commerce and are not usually available until late August. The Director regrets that at the present writing there is no clear indication on the choice of a new base period; it could be 1960 or 1958 or a three year period. It appears likely that for some years to come we shall be faced with the criticism of the high indexes for physicians' fees which is a mirage due to the use of 1947-1949 as a base period. Many inquiries are received from physicians requesting income data on the profession. The Bureau and the United States Department of Commerce joined hands in making a definitive survey of physicians' incomes for 1949. Except for a very small sample study for 1951 under joint sponsorship, neither sponsor has made a study for a later year.

During the year the Director and Leonard W. Martin, Ph.D., Research Associate, addressed medical and lay groups. An article by the Director on the Australia study was published in a political science research journal; an article entitled, "Free Enterprise—Why?" by Dr. Martin was published in the June, 1958, issue of *The Freeman.*

The Director's interest in the Jenkins-Keogh bills has continued, although the active work on the bills is largely performed by the staff of the American Thrift Assembly of which the American Medical Association is a member. Some of the organizations supporting these bills which are not members of the American Thrift Assembly have been in touch with the Director because of his long-time work on these bills. The Bureau has printed 27 items on these bills during the last eight years. Consideration has been given to a number of suggested changes in the limits on the annual amounts set aside which might improve public and congressional support of these bills. (On July 29 the House passed the bill by a voice vote with little opposition.)

Steady progress has been made in the task of editing, coding, and anlyzing the data on 400,000 inpatients discharged from 6,000 hospitals. During the year the office of the Standard Nomenclature of Diseases and Operations has developed 225 categories into which all of the more than 15,000 separate diagnostic codes can be grouped. This work has modified the original research program and involves considerable experimentation with our data, particularly those from the New England hospitals. At the present writing it seems likely that these 225 groups can be established experimentally and can be made available as a part of future editions of the Standard Nomenclature. It will become a more useful publication to physicians and statisticians. The IBM operations for all of the 6,000 hospitals should be completed early in 1959. As an incidental part of this research project the Bureau was able to furnish the Staff Task Force on the Forand Bill new data on the comparative duration of average stay in New England hospitals by age groups, particularly for the age group 65 and over. The Director continues to regard this basic research study as one of the most valuable ever undertaken by the Bureau. When completed it will be possible to tell the American people what they get for what they spend for medical care in terms of their ailments.

Several annual reports of the Bureau prior to that for 1957 made extensive reference to IBM operations as the IBM division was part of the Bureau for many years. Several references were made to the statistical card and uses being made of that deck. This statistical card, which was utilized to help prepare the 1958 American Medical Directory, will now be made available to the Bureau in a reproduced deck. It will be an important tool in the research program of the Bureau—women physicians, distribution of medical school alumni, rising proportion of physicians not in active private practice, proportion of services given by physicians without charge, etc.

In Bulletin 104, Accident Burden on Hospitals, we found that accidents account for 7 to 8% of the utilization of hospitals and, presumably, of the services of physicians. During 1955 accident patients accounted for more than $300,000,000 of hospital expenditures. Almost one third of the emergency room service was to the victims of accidents. Prevention of accidents is a responsibility of all citizens, not of physicians alone. It is important to note that accidents and pregnancies, neither of which is a disease, account for about one fourth of the inpatients discharged from hospitals. Our exhibit at the annual meeting in San Francisco was a series of charts on the accident burden on hospitals reproduced in Bulletin 104A. In the 1958 edition of *Accident Facts*, a widely used publication of the National Safety Council, the first text page was devoted to a summary of our study of the accident burden on hospitals. Thus the presentation of the results of our research is being publicized by the National Safety Council. This illustrates one of the problems which the Director has never been able to solve to his satisfaction, namely, communicating the results of the Bureau's research to members of the public. It is recognized that an agency such as the National Safety Council may actually reach many sections of the American public much more efficiently than could any type of popular pamphlet published by the Bureau.

Bulletin 105, The Younging of Electorates, is a very condensed report of the Director's findings during his four month study in New Zealand and Australia early in 1957. Based upon an examination of many documents not available in the United States and interviews and conferences with more than three score academic, religious, journalistic and political leaders of the two countries as well as independent study before, during, and after the visit, he found: (1) After about a half century during which the proportion of voters 50 years of age and over has been increasing, the proportion of older voters will start to decline in Australia after 1961, in New Zealand after 1962, in France (slowly) after 1965, and in the United States after 1970; the proportion of older voters will still be rising in the United Kingdom in 1978, the last year for which estimates could be prepared of the number of voters 21 years of age and over without hazarding a prediction of the number of births in each of these countries during 1958 and subsequent years. (2) There was considerable evidence that the increasing proportion of older voters in Australia, and to a lesser extent in New Zealand, was an important factor in developing a strong trend toward the Welfare State in recent decades. The Director's general thesis is rather new and, of course, it will be several years before social scientists in the various countries will test his basic thesis of the rise and fall of the Welfare State. The Director is happy to report that Bulletin 105 has established many new contacts for the Bureau of Medical Economic Research with universities in the United States and other countries. The Director earnestly hopes that this type of study may be of use to the Association in the discussion of important policies during the next decade and that it will reduce some of the criticism heaped upon the medical profession for its great success in prolonging life during this century and enabling so many people to live on into old age, when their understandable demand for security guaranteed by government generates increasing political pressure for a riskless society. (3) As Australia approaches the end of the period of its aging electorate and moves into the new era of the younging of its electorate, there are manifold evidences that the citizens of this continent "down under" will move away from some of the Welfare State ideas.

The mystery of why females live longer than males was given a new turn in a Bureau publication during the year (M-111).

In another editorial in THE JOURNAL (June 14, 1958, reprinted as M-113), the Director summarized an important study showing that one of the basic reasons why people, particularly those in the low income groups, bought life insurance was to provide a clean-up fund to pay off medical and other bills at death. Over one billion dollars annually is paid out by life insurance companies in death claims for persons age 65 and over and this considerable sum of money should not be disregarded in any consideration of funds available to pay the costs of the last illness for retired persons.

REPORT OF BUSINESS MANAGER

During the past year, the handling of the business activities of the Association has continued to improve. During the first seven months of this period, Thomas R. Gardiner handled the combined responsibilities of Business and Advertising Manager. On Feb. 1st, after 49 years of service with the Association, Mr. Gardiner retired as Business Manager, and Russell H. Clark assumed the responsibilties of Business Manager, and Robert J. Lyon assumed the responsibilities of Advertising Manager. Shortly thereafter, the business activities of the Association were reorganized under eight headings: Accounting, Personnel, Contract Printing, Advertising, Records and Circulation, Operating Services, Convention Services, Building Maintenance. The Business Department continues in its role of service to all of the other Headquarters activities.

During the year July 1, 1957, to June 30, 1958, the plans for remodeling and air-conditioning the Association's Headquarters Building in Chicago were completed and a program to implement these plans was submitted to, and approved by, the Board of Trustees. These plans envision an investment by the Association of approximately two and a half million dollars, and when completed in December, 1959, will provide the Association with a Headquarters building ideally suited to the needs of the Association for many years to come. An integral part of the program calls for renovating the first three floors of the building which in years past had been occupied by the A. M.A.'s printing plant.

RECORDS AND CIRCULATION DEPARTMENT

Membership Records

The Fiscal Year July 1, 1957 Through June 30, 1958

The number of physicians holding membership in the American Medical Association increased by 5,601 during the year ending June 30, 1958, as compared with the same period ending June 30, 1957. A breakdown of the membership records as of June 30 indicates the following:

Reported Through Constituent Societies	*1958*	*1957*
Active Paid Members	136,062	133,034
Active Members Exempt from dues	10,344	10,216
Associate Members	6,293	6,127
Reported Direct		
Service Members	16,352	14,059
Affiliate Members	278	290
Honorary Members	89	91
Total Membership on June 30	169,418	163,817

The total income from 1958 membership dues for the first six months of 1958 was $3,337,622, which was an increase of $86,485 over the same period for 1957.

A new procedure was used to notify the apparently dues delinquent physicians that their eligibility for membership in the Association had not been established as of June 1, 1958. For the first time a reply card and an envelope addressed to the Executive Secretary of the physician's state or territorial medical society, was included with the delinquency notice. The reply card gave the physicians an opportunity to correct any misunderstanding that may have occurred regarding their continued A. M. A. membership. The new method was acclaimed by physicians and Executive Secretaries of the constituent associations and its use will be continued.

This year 10,066 physicians were notified that their membership for 1958 had not been established as of June 1; however, it was only necessary on June 30 to discontinue the membership of 3,379 physicians under the provisions of Chapter III, Section 5 of the A. M. A. Constitution and Bylaws.

The increase of 5,601 members was effected even though the names of 3,379 physicians were removed from the membership rolls on June 30, because their A. M. A. membership status for the year 1958 had not been established through their constituent medical association.

The following table shows the number of physician members of state and territorial medical societies who also hold membership in the American Medical Association. Comparative figures are given as of June 30 for both 1957 and 1958 (apportionment of delegates is based on the membership as recorded on December 31 of each year) (Bylaws, Chapter IX, Section 1 (C) (1)):

A. M. A. Membership on June 30

State	No. of Physicians in State on 12/31/57	Dues Paying	Dues Exempt	Associate Members	Total 1958	Total 1957
Alabama	2,367	1,538	298		1,836	1,770
Alaska	101	70	9	2	81	86
Arizona	1,085	842	36	39	917	851
Arkansas	1,581	930	110		1,040	1,043
California	21,937	14,903	538	1,151	16,592	15,825
Colorado	2,405	1,653	287	249	2,189	2,085
Connecticut	3,928	2,380	160		2,540	2,529
Delaware	517	352	32	1	385	381
D. C.	2,431	1,179	102	224	1,505	1,479
Florida	4,968	2,899	159	68	3,126	2,891
Georgia	3,353	2,157	301	21	2,479	2,465
Hawaii	575	366	15	23	404	451
Idaho	569	469	3		472	486
Illinois	12,317	8,968	925		9,893	9,687
Indiana	4,398	3,321	660		3,981	3,824
Iowa	2,747	2,006	328	28	2,362	2,361
Isthmian C. Z.	187	16	20		36	34
Kansas	2,228	1,264	259	1	1,524	1,560
Kentucky	2,622	1,755	41	96	1,892	1,837
Louisiana	3,411	1,818	16	90	1,924	1,877
Maine	991	533	108	11	652	655
Maryland	3,843	1,749	188	132	2,069	2,051
Massachusetts	8,758	4,372	597	68	5,037	5,043
Michigan	8,178	5,306	422	395	6,123	5,851
Minnesota	4,321	2,941	357	151	3,449	3,360
Mississippi	1,586	1,084	164	4	1,252	1,250
Missouri	4,794	2,824	491		3,315	3,307
Montana	635	498	26	45	569	565
Nebraska	1,536	1,115	29	101	1,245	1,270
Nevada	256	201	6		207	203
New Hampshire	778	446	51	11	508	517
New Jersey	6,868	5,195	240	406	5,841	5,753
New Mexico	656	463	41		504	497
New York	30,986	16,150	334	1,013	17,497	17,011
North Carolina	4,022	2,605	181		2,786	2,741
North Dakota	485	376	35		411	406
Ohio	11,067	7,359	589		7,948	7,751
Oklahoma	2,170	1,495	129	119	1,743	1,756
Oregon	2,157	1,286	83	285	1,654	1.635
Pennsylvania	14,593	10,319	257	932	11,508	11.377
Puerto Rico	930	220			220	212
Rhode Island	1,043	683	84		767	774
South Carolina	1,747	1,039	4		1,043	1,230
South Dakota	498	348	22	31	401	423
Tennessee	3,490	2,239	217	1	2,457	2,404
Texas	8,842	6,512	447	211	7,170	6,939
Utah	1,030	721	50		771	762
Vermont	556	353	51		404	408
Virginia	3,706	1,712	240	57	2,009	2,049
Washington	3,293	2,495	257	4	2,756	2,628
West Virginiia	1,692	1,299	10	146	1,455	1,449
Wisconsin	3,954	2,906	325	177	3,408	3,273
Wyoming	259	237	10		247	240
Transfers		95			95	65
TOTALS	213,447	136,062	10,344	6,293	152,699	149,377
Government Services						
Army					4,406	1,859
Navy					3,482	3,800
Air Force					3,321	3,307
Public Health Service					1,615	1,670
Veterans Administration					3,528	3,423
Affiliate Members					278	290
Honorary Members					89	91
GRAND TOTAL					169,418	163,817

Convention Registration Bureau

The Records and Circulation Department covers Registration activities in connection with both the Annual and Clinical Meetings of the American Medical Association, and is responsible for the proper registration and admittance of all member physicians and their guests.

The registration of the Philadelphia Clinical Meeting and the San Francisco Annual Meeting is shown in detail below.

Registration, Philadelphia, Dec. 3-6, 1957

Physicians	2,637
Residents	335
Interns	154
Students	747
Nurses	150
Technicians	56
Physicians' Guests	1,545
Total	5,624
Technical Exhibitors	936
Technical Exhibitors' Guests	340
Grand Total	6,900

Registration, San Francisco, June 23-27, 1958

Physicians	13,218
Residents	494
Interns	285
Students	419
Nurses	1,906
Technicians	626
Physicians' Guests	22,769
Total	39,717
Technical Exhibitors	2,528
Technical Exhibitors' Guests	1,310
Grand Total	43,555

Physicians' Biographical Records

Fiscal Year July 1, 1957 Through June 30, 1958

The complete Biographical records which are maintained for every licensed physician in the U. S. A. and Possessions, are now organized with the historical information manually recorded and a digest of the pertinent information maintained on IBM punched cards.

The information maintained in the Biographical Records is made available to all Councils, Bureaus and Departments of the American Medical Association as well as allied medical organizations. This information will be published, corrected to December 31, 1957, in the 20th (1958) Edition of the American Medical Directory.

Current changes and additions are made available to addressing firms and pharmaceutical houses through subscription to the semi-monthly Directory Report Service. This supplementary service is offered on a service-fee basis to authorized business firms, and brought the Association a revenue of $377,752.00 during the fiscal year.

During the fiscal year ending June 30, 8,995 physicians have been added to the Biographical Records, and approximately 25,100 changes of address have been recorded. 6,251 other changes not involving the address have also been recorded, and 4,187 physicians have been removed from the records because of death.

The Bureau of Medical Economic Research uses the information recorded in the IBM Punched Card Records for their statistical studies concerning the physician population. The Bureau of Investigation makes frequent use of the Biographical information in the historical records when verifying the identity of persons about whom various inquiries have been made.

The Biographical records are maintained for the benefit of the entire Association, and insofar as facilities are available, the information on the medical profession is made available to any individual or organization who has a legitimate request.

American Medical Directory Circulation

Fiscal Year July 1, 1957 Through June 30, 1958

Sale of the 19th (1956) Edition of the *American Medical Directory* has continued. A total of 17,248 copies have been distributed and only 33 copies of Volume 19 are still available.

The 20th (1958) Edition of the *American Medical Directory* has been printed, and will be bound and available for distribution this fall. During the current fiscal year, more than 8,000 advance subscription orders have been received.

This new Edition has entailed a considerable amount of editorial work, and has been printed from the IBM Statistical cards supplied by the Physicians' Biographical Record Branch.

Sale of the 20th Edition will continue through the next fiscal year.

IBM Service Branch

The Fiscal Year July 1, 1957, Through June 30, 1958

The Machine Records Systems Department was retitled the IBM Service Branch of the Records and Circulation Department this fiscal year. This realignment of responsibilities has enabled the IBM Service Branch to increase its activities and expand its service department functions.

Over 1,500,000 punched cards were processed by this branch in completing the conversion of the previously manually maintained Physicians' Biographical Statistical cards to a key-punched card system, which can now be processed mechanically. The physicians' index and all of the biographical sections of the 20th Edition (1958) *American Medical Directory* were produced from copy prepared from these punched cards.

The maintenance and processing of the Association's Membership Records required the processing of more than 500,000 punched cards for recording current membership records. The 1958 A. M. A. Membership Pocket Cards were prepared on IBM machines.

More than 75,000 punched cards were used to record the contributions to the American Medical Education Foundation, and the running of monthly, semi-annual and annual reports.

The Council on Medical Education and Hospitals made use of the IBM Service in preparing all listings and tables for the Directory of approved Internships and Residencies, as well as the statistical data for the Education and the State Board numbers of The Journal of the A. M. A.

In cooperation with the Bureau of Medical Economic Research, more than 500,000 punched cards have been prepared and tabulated for a special hospital study concerned with the in-patients discharged from the nation's hospitals during the week of October 21-27, 1956.

Under a contract with the U. S. Department of Health, Education and Welfare, more than 275,000 punched cards from the Physicians' Biographical Records were reproduced and used by the Civilian Defense Division.

Many other Councils, Bureaus and Departments made use of the IBM Services for special studies during the fiscal year, and future plans call for the expansion of such services.

Scientific Journals Circulation

From July 1, 1957, Through June 30, 1958

During the fiscal year ending June 30, 1958, the average net paid circulation of The Journal of the A. M. A. and the Nine Scientific Monthlies continued to show a gradual increase.

The average net paid weekly circulation for The Journal of the A. M. A. was 175,687. This was an increase of 1,100 paid copies per week over the previous fiscal year. The average total distribution for each weekly issue was 184,000.

A comparison of the average net paid monthly circulation for each of the Nine Scientific Monthlies during the last two fiscal years shows:

	7/1/57 to 6/30/58	7/1/56 to 6/30/57
A. M. A. Journal of Diseases of Children	*8,268*	*8,212*
A. M. A. Archives of Dermatology	*5,563*	*5,401*
A. M. A. Archives of Industrial Health	*3,433*	*3,236*
A. M. A. Archives of Internal Medicine	*10,522*	*10,310*
A. M. A. Archives of Neurology and Psychiatry	*5,636*	*5,564*
A. M. A. Archives of Ophthalmology	*7,621*	*7,497*
A. M. A. Archives of Otolaryngology	*5,867*	*5,810*
A. M. A. Archives of Pathology	*4,275*	*4,216*
A. M. A. Archives of Surgery	*8,854*	*8,357*

Two volumes of the *Quarterly Cumulative Index Medicus* were released during this fiscal year, and their net paid circulation was:

Q. C. I. M. Volume #57 (January to June, 1955)	4,497
Q. C. I. M. Volume #58 (July to December, 1955)	4,447

A comparison of the classification of subscribers who received the April 27, 1957, issue and the April 26, 1958, issue of The Journal of the A. M. A. follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	4/26/58, %	4/27/57, %
M.D. Membership Benefit	68.5	67.5
Men & Women	7.4	7.9
M.D. Member Subscribers	6.9	
M.S. Subscribers	5.2	7.8
Residents, Interns & Students	5.0	9.6
Firms & Corporations	2.9	3.4
Hospitals	1.6	1.6
U. S. Military	0.8	0.9
Schools & Colleges	0.7	0.7
Clinics & Health Groups	0.5	0.3
Single Copy Sales	0.3	(8)
D.D.S.	0.1	0.1
Public Libraries	0.1	0.1
R.N.	0.0	0.1
Total Net Paid Circulation	178,296	177,878

A comparison of the classification of subscribers who received the May, 1957, and May, 1958, issues of the A. M. A. *Journal of Diseases of Children* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Membership Benefit	36.7	35.5
M.D. Member subscribers	14.0	
Hospitals	13.2	13.1
M.S. Subscribers	8.5	23.1
Firms and Corporations	8.2	8.5
Men and Women	6.8	6.6
Schools and Colleges	5.7	5.5
Residents, Interns and Students	3.4	3.7
Clinics and Health Groups	1.8	2.3
U. S. Military	1.3	1.4
Public Libraries	0.4	0.2
D.D.S.		0.1
R.N.		0.0
(Single Copy Sales)	(6)	(1)
Total Net Paid Circulation	8,350	7,929

A comparison of the classification of subscribers who received the May, 1957, and May, 1958, issues of the A. M. A. *Archives of Internal Medicine* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Memership Benefit	30.0	28.6
M.D. Member Subscribers	19.4	
Hospitals	14.4	13.8
Firms and Corporations	7.6	8.8
M.D. Subscribers	7.1	26.6
Men and Women	6.8	6.8
Residents, Interns and Students	4.9	5.6
Schools and Colleges	4.6	4.5
Clinics and Health Groups	2.3	0.7
U. S. Military	2.3	4.2
Public Libraries	0.6	0.4
(Single Copy Sales)	(3)	
Total Net Paid Circulation	10,810	10,056

A comparison of the classification of subscribers who received the May, 1957, and May, 1958, issues of the A. M. A. *Archives of Neurology and Psychiatry* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Membership Benefit	27.1	26.2
Hospitals	17.2	17.6
M.D. Member Subscribers	17.0	
Firms and Corporations	12.3	10.5
Men and Women	7.7	7.3
Schools and Colleges	7.2	8.3
M.D. Subscribers	4.1	21.7
Residents, Interns and Students	4.1	3.9
U. S. Military	2.0	2.9
Clinics and Health Groups	1.2	1.4
Public Libraries	0.1	0.2
Total Net Paid Circulation	5,689	5,248

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Dermatology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Member Subscribers	26.8	
M.D. Members	15.4	15.9
Men and Women	14.1	10.2
Hospitals	11.7	12.6
M.D. Subscribers	9.9	35.0
Firms and Corporations	7.3	12.2
Schools and Colleges	5.7	5.7
Residents, Interns and Students	4.6	3.6
Clinics and Health Groups	2.3	1.4
U. S. Military	1.8	2.6
Public Libraries	0.4	0.6
D.D.S.		0.1
R.N.		0.1
(Single Copy Sales)		(1)
Total Net Paid Circulation	5,525	5,198

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Pathology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
Hospitals	21.3	22.1
M.D. Member Subscribers	17.6	
M.D. Members	15.2	15.2
Firms and Corporations	14.4	8.8
Schools and Colleges	9.9	11.3
Men and Women	6.6	8.8
M.D. Subscribers	6.0	23.1
Residents, Interns and Students	3.4	3.6
Clinics and Health Groups	2.4	3.2
U. S. Military	1.8	3.1
Public Libraries	1.4	0.8
Total Net Paid Circulation	4,364	3,982

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Otolaryngology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Members	27.1	27.8
M.D. Member Subscribers	25.9	
Men and Women	11.8	9.9
Hospitals	10.2	11.2
Firms and Corporations	9.5	10.6
Schools and Colleges	4.7	5.2
M.D. Subscribers	4.3	30.5
U. S. Military	2.4	1.6
Residents, Interns and Students	2.3	1.8
Clinics and Health Groups	1.5	0.9
(Single Copy Sales)	0.2	0.1
Public Libraries	0.1	0.3
D.D.S.		0.1
Total Net Paid Circulation	5,838	5,558

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Surgery* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M. D. Members	46.3	49.4
M.D. Member Subscribers	21.8	
Hospitals	10.8	11.6
M.D. Subscribers	4.1	21.0
Residents, Interns and Students	4.0	3.1
Firms and Corporations	3.8	4.8
Men and Women	3.5	3.4
Schools	3.4	3.3
Clinics and Health Groups	1.1	1.4
U. S. Military	1.1	1.3
Public Libraries	0.1	0.3
D.D.S.		0.3
(Single Copy Sales)		0.1
Total Net Paid Circulation	9,710	8,632

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Ophthalmology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Members	37.4	37.1
M.D. Member Subscribers	24.3	
Men and Women	10.6	7.3
Hospitals	7.5	6.8
Firms and Corporations	5.8	7.5
M.D. Subscribers	4.2	29.9
Residents, Interns and Students	3.6	3.6
Schools and Colleges	3.6	4.4
U. S. Military	1.5	2.2
Clinics	1.3	0.9
Public Libraries	0.2	0.3
(Single Copy Sales)		(1.1)
Total Net Paid Circulation	7,523	7,221

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Industrial Health* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
Firms and Corporations	43.2	46.7
M.D. Member Subscribers	10.0	
Schools & Colleges	9.6	9.3
M.D. Subscribers	9.4	13.3
Men & Women	7.6	6.0
M.D. Membership Benefit	5.3	5.5
U. S. Military	5.0	7.1
Hospitals	4.9	4.6
Clinics and Health Groups	3.4	3.4
Public Libraries	1.6	2.1
Residents, Interns & Students	0.0	1.8
R.N.	0.0	0.1
D.D.S.	0.0	0.0
(Single Copy Sales)	*(2,500)	0.1
*Special Single Copy Sale		
Total Net Paid Circulation	5,683	3,041

During the fiscal year ending June 30, 1958, the renewal percentage for each of the scientific periodicals continued at a high level. The average renewal percentage for each publication is indicated as follows:

	Renewal Average *July 1, 1957 through June 30, 1958, %*
Journal of the A. M. A.	78.3
A. M. A. Journal of Diseases of Children	91.2
A. M. A. Archives of Dermatology	99.6
A. M. A. Archives of Industrial Health	88.3
A. M. A. Archives of Internal Medicine	90.1
A. M. A. Archives of Neurology & Psychiatry	89.8
A. M. A. Archives of Ophthalmology	97.6
A. M. A. Archives of Otolaryngology	97.8
A. M. A. Archives of Pathology	94.3
A. M. A. Archives of Surgery	94.5
Quarterly Cumulative Index Medicus	98.3

The practice of including subscription order forms in various issues has been continued, and a number of subscriptions for the various publications have been received as a result of these insertions. A series of successful advertisements for subscriptions was placed in *The New Physician*, the official publication of *The Student* A. M. A. Similar advertisements have been scheduled in the subscription catalogues of the world's leading magazine agencies. This series of advertisements will be continued during the next fiscal year.

Sample copies, promotion circulars and subscription order forms for the scientific publications were distributed to physicians, dentists, and medical and professional personnel at the following meetings:

1. American Academy of General Practice
2. American College of Surgeons
3. American Dental Association
4. American Library Association
5. American Hospital Association
6. American Nurses Association
7. American Orthopsychiatric Association
8. American Public Health Association
9. Annual American Medical Association
10. Clinical American Medical Association
11. Student American Medical Association

Today's Health Circulation

The Fiscal Year July 1, 1957, through June 30, 1958

During this fiscal year, the Circulation of *Today's Health* reached its highest point since the founding of the Magazine as *Hygeia* in April, 1923. The average net paid circulation was 409,099 per month. The average total monthly distribution of copies during this period was 427,838.

A comparison of the classification of subscribers who received the May, 1957 and May, 1958 issue follows:

Percentage of Total Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
Women	43.7	43.0
Men	24.3	23.1
M.D.	13.7	16.2
Teachers, Schools, Colleges	5.9	6.5
D.D.S.	2.8	3.0
R.N.	2.5	2.0
Firms and Corporations	1.8	1.8
Public Libraries	1.2	1.3
Hospitals	0.6	0.7
Clinics and Health Groups	0.7	0.7
Reverend	0.4	0.4
Beauty Parlors	0.3	0.3
Clubs, Y. M. C. A., Y. W. C. A.	0.1	0.1
Newsstand Sales	1.2	0.1
Bulk and Single Copy Sales	0.8	0.8
Net Paid Circulation	**471,988**	**400,062**

A portion of the circulation to physicians' and dentists' reception rooms was the result of the annual subscription project conducted by the Woman's Auxiliary to the American Medical Association. The *Today's Health* Subscription project theme for the National Auxiliary was "Increased Reception Room Readership". Local and State Medical Society Auxiliaries produced orders for 56,525 subscription years during this period. Presidents of State Auxiliaries who exceeded 100% of their subscription quota and the National Auxiliary Officers were honored at a luncheon in the Fairmont Hotel during the San Francisco Annual Meeting.

The practice of including order forms in each issue was continued and a large number of subscriptions have been received from prospects who saw the magazine in a reception room, school or library. Many new subscribers state that they subscribed to the magazine for the first time after seeing it in their Doctor's waiting room.

The magazine continues to have a healthy growth of circulation in all areas of the country, and the new editorial policies have helped raise the renewal percentage to approximately 52%. This compares favorably with nationally circulated consumer magazines who expect to approach a renewal of only 40%.

The present plans call for an average net paid circulation for the next fiscal year of approximately 440,000. This average net paid circulation, with a total distribution per month of 450,000, can be maintained with the aid of magazine agencies, the Medical Society Auxiliaries, and a substantial direct mail promotion campaign.

A comparison of the classification of subscribers who received the May, 1957, and May, 1958, issues of the A. M. A. *Archives of Internal Medicine* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Memership Benefit	30.0	28.6
M.D. Member Subscribers	19.4	
Hospitals	14.4	13.8
Firms and Corporations	7.6	8.8
M.D. Subscribers	7.1	26.6
Men and Women	6.8	6.8
Residents, Interns and Students	4.9	5.6
Schools and Colleges	4.6	4.5
Clinics and Health Groups	2.3	0.7
U. S. Military	2.3	4.2
Public Libraries	0.6	0.4
(Single Copy Sales)	(3)	
Total Net Paid Circulation	10,810	10,056

A comparison of the classification of subscribers who received the May, 1957, and May, 1958, issues of the A. M. A. *Archives of Neurology and Psychiatry* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Membership Benefit	27.1	26.2
Hospitals	17.2	17.6
M.D. Member Subscribers	17.0	
Firms and Corporations	12.3	10.5
Men and Women	7.7	7.3
Schools and Colleges	7.2	8.3
M.D. Subscribers	4.1	21.7
Residents, Interns and Students	4.1	3.9
U. S. Military	2.0	2.9
Clinics and Health Groups	1.2	1.4
Public Libraries	0.1	0.2
Total Net Paid Circulation	5,689	5,248

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Dermatology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Member Subscribers	26.8	
M.D. Members	15.4	15.9
Men and Women	14.1	10.2
Hospitals	11.7	12.6
M.D. Subscribers	9.9	35.0
Firms and Corporations	7.3	12.2
Schools and Colleges	5.7	5.7
Residents, Interns and Students	4.6	3.6
Clinics and Health Groups	2.3	1.4
U. S. Military	1.8	2.6
Public Libraries	0.4	0.6
D.D.S.		0.1
R.N.		0.1
(Single Copy Sales)		(1)
Total Net Paid Circulation	5,525	5,198

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Pathology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
Hospitals	21.3	22.1
M.D. Member Subscribers	17.6	
M.D. Members	15.2	15.2
Firms and Corporations	14.4	8.8
Schools and Colleges	9.9	11.3
Men and Women	6.6	8.8
M.D. Subscribers	6.0	23.1
Residents, Interns and Students	3.4	3.6
Clinics and Health Groups	2.4	3.2
U. S. Military	1.8	3.1
Public Libraries	1.4	0.8
Total Net Paid Circulation	4,364	3,982

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Otolaryngology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Members	27.1	27.8
M.D. Member Subscribers	25.9	
Men and Women	11.8	9.9
Hospitals	10.2	11.2
Firms and Corporations	9.5	10.6
Schools and Colleges	4.7	5.2
M.D. Subscribers	4.3	30.5
U. S. Military	2.4	1.6
Residents, Interns and Students	2.3	1.8
Clinics and Health Groups	1.5	0.9
(Single Copy Sales)	0.2	0.1
Public Libraries	0.1	0.3
D.D.S.		0.1
Total Net Paid Circulation	5,838	5,558

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Surgery* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M. D. Members	46.3	49.4
M.D. Member Subscribers	21.8	
Hospitals	10.8	11.6
M.D. Subscribers	4.1	21.0
Residents, Interns and Students	4.0	3.1
Firms and Corporations	3.8	4.8
Men and Women	3.5	3.4
Schools	3.4	3.3
Clinics and Health Groups	1.1	1.4
U. S. Military	1.1	1.3
Public Libraries	0.1	0.3
D.D.S.		0.3
(Single Copy Sales)		0.1
Total Net Paid Circulation	9,710	8,632

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Ophthalmology* follows:

Percentage of Total Net Paid Subscriptions

Subscriber Classifications	May, 1958, %	May, 1957, %
M.D. Members	37.4	37.1
M.D. Member Subscribers	24.3	
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Schools and Colleges	3.6	4.4
U. S. Military	1.5	2.2
Clinics	1.3	0.9
Public Libraries	0.2	0.3
(Single Copy Sales)		(1)
Total Net Paid Circulation	7,523	7,221

A comparison of the classification of subscribers who received the May, 1957, and May, 1958 issues of the A. M. A. *Archives of Industrial Health* follows:

Percentage of Total Net Paid Subscriptions

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Schools & Colleges	9.6	9.3
M.D. Subscribers	9.4	13.3
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Public Libraries	1.6	2.1
Residents, Interns & Students	0.0	1.8
R.N.	0.0	0.1
D.D.S.	0.0	0.0
(Single Copy Sales) *Special Single Copy Sale	*(2,500)	0.1
Total Net Paid Circulation	5,683	3,041

During the fiscal year ending June 30, 1958, the renewal percentage for each of the scientific periodicals continued at a high level. The average renewal percentage for each publication is indicated as follows:

	Renewal Average *July 1, 1957 through June 30, 1958, %*
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A. M. A. *Archives of Industrial Health*	88.3
A. M. A. *Archives of Internal Medicine*	90.1
A. M. A. *Archives of Neurology & Psychiatry*	89.8
A. M. A. *Archives of Ophthalmology*	97.6
A. M. A. *Archives of Otolaryngology*	97.8
A. M. A. *Archives of Pathology*	94.3
A. M. A. *Archives of Surgery*	94.5
Quarterly Cumulative Index Medicus	98.3

The practice of including subscription order forms in various issues has been continued, and a number of subscriptions for the various publications have been received as a result of these insertions. A series of successful advertisements for subscriptions was placed in *The New Physician,* the official publication of *The Student* A. M. A. Similar advertisements have been scheduled in the subscription catalogues of the world's leading magazine agencies. This series of advertisements will be continued during the next fiscal year.

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6. American Nurses Association
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M.D.	13.7	16.2
Teachers, Schools, Colleges	5.9	6.5
D.D.S.	2.8	3.0
R.N.	2.5	2.0
Firms and Corporations	1.8	1.8
Public Libraries	1.2	1.3
Hospitals	0.6	0.7
Clinics and Health Groups	0.7	0.7
Reverend	0.4	0.4
Beauty Parlors	0.3	0.3
Clubs, Y. M. C. A., Y. W. C. A.	0.1	0.1
Newsstand Sales	1.2	0.1
Bulk and Single Copy Sales	0.8	0.8
Net Paid Circulation	**471,988**	**400,062**

A portion of the circulation to physicians' and dentists' reception rooms was the result of the annual subscription project conducted by the Woman's Auxiliary to the American Medical Association. The *Today's Health* Subscription project theme for the National Auxiliary was "Increased Reception Room Readership". Local and State Medical Society Auxiliaries produced orders for 56,525 subscription years during this period. Presidents of State Auxiliaries who exceeded 100% of their subscription quota and the National Auxiliary Officers were honored at a luncheon in the Fairmont Hotel during the San Francisco Annual Meeting.

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The magazine continues to have a healthy growth of circulation in all areas of the country, and the new editorial policies have helped raise the renewal percentage to approximately 52%. This compares favorably with nationally circulated consumer magazines who expect to approach a renewal of only 40%.

The present plans call for an average net paid circulation for the next fiscal year of approximately 440,000. This average net paid circulation, with a total distribution per month of 450,000, can be maintained with the aid of magazine agencies, the Medical Society Auxiliaries, and a substantial direct mail promotion campaign.

Today's Health Circulation, July 1957 thru June, 1958

Month	Mail subscribers (individual)	News-dealers	Single copies	Bulk copies	Total net paid	Exchange & executive	Advertisers	Agents	Samples	Total distribution
July	374,859	211	465	159	375,694	720	1,535	2,019	12,580	392,548
August	392,837	233	95	113	393,278	829	1,544	2,034	4,735	402,420
September	402,092	172	463	2,933	405,660	827	1,634	2,030	8,811	418,962
October	390,135	1,946	276	4,211	396,568	851	1,672	2,032	10,927	412,050
November	390,682	1,459	131	4,235	396,507	828	1,742	2,062	11,169	412,308
December	381,228	1,232	106	4,412	386,978	832	1,868	2,205	14,801	406,684
January	388,869	2,444	2,879	3,875	398,067	834	1,781	2,413	9,927	413,022
February	407,647	2,153	1,449	3,584	414,833	834	1,816	2,443	10,446	430,372
March	405,235	1,961	188	3,413	410,797	834	1,840	2,467	10,381	426,319
April	417,340	4,738	103	3,344	425,525	803	2,124	2,498	12,275	443,225
May	463,109	5,500	85	3,294	471,988	838	2,268	2,653	25,168	502,915
June	425,395	5,500	1,076	1,323	433,294	845	2,356	2,873	33,861	473,229
Totals	4,839,428	27,549	7,316	34,896	4,909,189	9,875	22,180	27,729	165,081	5,134,054
Average Per Month	403,286	2,296	610	2,908	409,099	823	1,848	2,311	13,757	427,838

Over 32,000 teachers and schools regularly subscribe to the magazine, and since each copy received by a student or teacher will normally be read by more than one student, the actual High School, College and University readership is quite considerable.

Today's Health was displayed at 12 National Conventions this past fiscal year, where sample copies and promotion material were distributed to professional and health education leaders and allied medical personnel.

1. American Academy of General Practice
2. American College of Surgeons
3. American Dental Association
4. American Hospital Association
5. American Nurses Association
6. American Public Health Association
7. American Association for Health, Physical Education and Recreation
8. Annual American Medical Association
9. Clinical American Medical Association
10. National Catholic Education Association
11. National Education Association
12. Student American Medical Association

Steps were taken this year to test the sale of *Today's Health* on newsstands in all cities over 10,000 population. In October, approximately 8,000 copies of *Today's Health* were placed on sale through a national distributor.

This monthly distribution has increased to its present level of approximately 11,000 copies per month. Preliminary reports show that the monthly sales have ranged from 25% to 52%, and reports from the dealers indicate that the new cover and editorial approach for the magazine are the main contributing factors for the hope for future increased sales. Attached is a breakdown of the distribution of copies for the fiscal year ending June 30, 1958.

Respectfully submitted,

Leonard W. Larson, M.D., Chairman
Julian P. Price, M.D., Vice Chairman
Hugh H. Hussey Jr., Secretary
James Z. Appel, M.D.
George M. Fister, M.D.
Warren W. Furey, M.D.
Raymond M. McKeown, M.D.
Cleon A. Nafe, M.D.
Rufus B. Robins, M.D.
Gunnar Gundersen, M.D.
Louis M. Orr, M.D.
W. Linwood Ball, M.D.
E. Vincent Askey, M.D.
Norman A. Welch, M.D.

JUDICIAL COUNCIL

The Judicial Council has had four sessions during the past year during which it considered questions concerning ethical interpretations and matters relating to membership. It heard one appeal from a constituent association involving the right of a doctor to obtain membership in a component medical society. No evidence was presented at any stage of the proceedings to indicate that the constitution and bylaws of the component and constituent societies were not observed. The decision of the constituent association affirming the action of the component society was approved.

Since making its last annual report to the House of Delegates the Council has realized an ambition of long standing: the collection and distribution of representative opinions and interpretations of the Principles of Medical Ethics. For the first time in the Association's history members now have a collection of precedents to which they may turn when it becomes necessary to evaluate the ethical propriety of particular conduct.

The Council appreciates full well that basic ethical concepts do not change. It appreciates also that interpretations of ethical concepts may change with increased knowledge and fuller understanding. Consequently, the Council welcomes comments, suggestions and constructive criticism of its interpretations of the Principles of Medical Ethics.

The preferable method of bringing matters to the Council for consideration is, of course, through the constituent association. Unique or novel questions (which do not involve an actual controversy, and which do not place the Council in the position of prejudging a controversial matter pending at the local level) may be considered whether presented by an individual, a county society or a state association.

From time immemorial the Council has pointed out that the component society is an autonomous group and that as such one of its principal duties is to apply ethical principles. Apparently this obligation is not recognized clearly by the majority of component societies or is, at best, not accepted as a principal obligation. The Judicial Council, although it wishes to be helpful, has neither jurisdiction nor facilities to investigate and adjudicate the propriety of the ethical conduct or practices of members of component societies. With the "Opinions and Reports" now in general distribution and available as a guide it is hoped component societies will more readily assume their responsibility in this regard.

Illustrative of the type of problem which can and should be resolved locally is the following example: A physician sent a proposed contract directly to the Judicial Council for evaluation. Under the terms of this proposed contract a druggist offered to rent to the physician space in a building he owned and where his drugstore was located. The rent would be $1000 a month if the druggist filled none of the doctor's prescriptions. But if the physician sent the druggist an average of 10 prescriptions a day, the rent would be $900 a month; if he sent the druggist an average of 20 prescriptions a day, rent would be $800 a month. With each daily increase of ten prescriptions by the physician, the druggist agreed to reduce the monthly rental by $100 until the rental would be $1 a month if the physician sent the druggist an average of 100 prescriptions a day.

Clearly an individual physician or a county medical society should have recognized at once that no physician could ethically enter into such an arrangement which was clearly a secret rebate or a commission for referral of prescription business (See *J. A. M. A.* Special Edition, June 7, 1958, pages 40-41).

The Council has noted a failure on the part of physicians to turn to their county medical societies for information concerning the application of ethical principles and the failure of county societies to be more aggressive in developing a sound program of ethics. During recent months the Council's correspondence contained numerous letters from hospital administrators which commence with a statement similar to this: "One of the doctors on the staff of our hospital is in doubt concerning an ethical problem. He asked me what ethical rule governed. Will you please advise me so I can tell the doctor what his conduct should be."

Obviously a number of criticisms can be made of such a situation. Why should a doctor go to a hospital administrator with a question of ethics? Why should a hospital administrator accept responsibility for framing the doctor's question and seeking an answer to it? How often do hospital personnel, untrained in the history, tradition and total background of medical ethics, resolve or attempt to resolve questions of ethics? If this practice exists to any widespread degree what assurance is there of uniformity of opinion? What control is there of such practice to prevent expediency from influencing the answer which is given?

The Council has emphasized the autonomy of the county society and the fact that such autonomy imposes responsibility. If medical societies fail to accept and discharge their obligations in matters of ethics others will assume these obligations by default. The Judicial Council urges county and state societies to adopt critical attitudes toward their programs to "uphold the honor and dignity" of the profession of medicine. These programs must be based on a sound knowledge and understanding of ethical principles. As long as ethical principles are widely and sedulously observed the reputation of the medical profession will be upheld. The reward will be commensurate with the service rendered in observance of these ideals. On the other hand, if there is flagrant, open, or even careless disregard of ethical principles the reputation of the profession of medicine will suffer and its responsibilities and obligations will be usurped by others.

Respectfully submitted,

HOMER L. PEARSON JR., Chairman
LOUIS A. BUIE SR., M.D.
J. MORRISON HUTCHESON, M.D.
ROBERTSON WARD, M.D.
GEORGE A. WOODHOUSE, M.D.
EDWIN J. HOLMAN, Executive Secretary

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The Council on Medical Education and Hospitals submits the following report covering the period from July 1, 1957, to June 30, 1958.

During the past year the Council has concerned itself with the various matters referred to it by the House of Delegates and in the pursuit of its multiple established activities. The latter include the survey and evaluation of medical schools; survey and evaluation of graduate medical education as conducted through internships, residencies, and fellowships; the collection and compilation of information on and listing of postgraduate opportunities in medical education; and the compilation of data concerning the education and training opportunities in certain technical areas related to medicine. In the course of conducting these functions, the Council and its staff have endeavored to contribute to and stimulate study and progress in medical education at all levels. These activities have necessitated consultations, conferences, collaboration, liaison, and intercommunication with many individuals and groups representing medical schools, hospitals, governmental and nongovernmental agencies, and other organizations, and institutions interested in and concerned with medical education in some or all of its aspects. The accreditation of basic medical education, graduate medical education and training, the collection, compilation, and dissemination of statistical and other information concerning medical schools, internships, residencies, postgraduate and continuation courses, medical licensure and related matters have been conducted in accord with established custom and modified in line with current needs.

Matters Referred to the Council by the House of Delegates

In December, 1957, the House of Delegates adopted Sections 2, 3, and 4 of Resolution 22 on the Distribution of Interns and referred them to the Council on Medical Education and Hospitals for referral to the Committee on Preparation for General Practice. The latter Committee has held numerous meetings during the course of the past year and a half during which the intern matters dealt with in Resolution 22 have been considered along with many other aspects of preparation for general practice. The Committee on Preparation for General Practice composed of representatives from the Council on Medical Education and Hospitals of the American Medical Association, the American Academy of General Practice, and the Association of American Medical Colleges submitted a report of progress to each of their parent organizations during May, 1958. The report was received by the Board of Trustees of the American Medical Association and presented to the House of Delegates at the June, 1958, meeting in San Francisco, as Supplementary Report A.

One of the major reasons for presenting this progress report was to advise the profession of the thinking of the Committee in regard to background preparation for general practice in the current setting and to elicit expressions of opinion and suggestions from the House of Delegates which might be of value in formulating the final report. The Reference Committee on Medical Education and Hospitals, after considering the report, recommended "that full consideration of this preliminary report be given by all members of the House of Delegates and that comments or suggestions be submitted to the Committee as suggested." The Committee on Preparation for General Practice will continue its meetings and anticipates a final definitive report as soon as possible. Further solution to Sections 2, 3, and 4 of Resolution 22 (December, 1957) should be possible when the final report is submitted as it will deal extensively with education beyond graduation from medical school.

Resolutions 26 and 27 dealing with the "Two Year Rotating Internship in Community and Municipal Hospitals," and "Plans to Promote Improved Intern Education and to Correct the Shortage of Interns," were introduced during the June, 1958, session of the House of Delegates. The Reference Committee on Medical Education and Hospitals referred these Resolutions to the Council on Medical Education and Hospitals for study and necessary action because of the continuing study it is carrying on with respect to the internship. The Council has continued to favor a sound well planned rotating internship as highly desirable. Furthermore, the Council in its annual compilation of internships lists many municipal and community hospitals as well as the major teaching hospitals which have been approved for such education and training experiences. The most recent edition of the "Essentials of an Approved Internship" states: "It is the opinion of the Council that the best general, basic education is provided by a well organized and conducted rotating internship."

The questions raised by Resolution 27 involve resolution of numerous problems such as length of time of deferment after graduation which will be allowed by Selective Service and the Military Services, whether or not specialty boards will give credit beyond a single year in a rotating internship unless the second year is specifically in the field of the specialty in which instance it is essentially a first year residency and not an internship. These constitute some of the problems currently confronting the Committee on Preparation for General Practice and the Council is grateful that the Reference Committee recognized this in its recommendations.

The Council has continued to study and implement the "One-Fourth Rule" in regard to internships which was adopted by the House of Delegates in June, 1955. The "One-Fourth Rule" stipulates that: "A hospital which for two consecutive years does not obtain one-fourth of its stated complement of interns may be disapproved for intern training." Communications concerning the interpretation of the ruling were sent to each hospital approved by the Council for intern training. Subsequently, based on information furnished by each hospital, the Council staff wrote letters of warning to each hospital which did not report at least one-fourth of its intern quota on duty Sept. 1, 1956. It was clearly indicated that failure to have at least one-fourth of its quota (the quota in each instance is established by the institution itself, except for Pennsylvania where the State Board sets intern quotas) for a second year would place its approved internship in jeopardy. In December, 1957, reports on internships were reviewed by the Council Staff to determine which institutions had been unable to fill one-fourth of their self-established quota for a second consecutive year. In February, 1958, 17 hospitals not having one-fourth of their intern quota for two consecutive years were presented to the Council for action. The Council directed that a final letter concerning the situation be sent to each hospital. All of these communications were sent by registered mail. In June, 1958, these 17 institutions were considered by the Internship Review Committee for recommendations to the Council and the following actions taken:

(a) Hospitals filling more than ¼ of their quota for July 1, 1958; continued approval	3 hospitals
(b) Hospitals having no interns for July 1, 1958; withdrawal of approval	9 hospitals (46 internships)
(c) Hospitals voluntarily requesting discontinuation of approval	2 hospitals (20 internships)
(d) Hospitals having ¼ of quota for July 1, 1958 and having potential for good intern training	3 hospitals

Thus in the first definitive action involving the one-fourth ruling, 11 hospitals offering 66 internships had their internship approval withdrawn.

Resolution 54 introduced at the June 1958 meeting of the House of Delegates resolved: "that the American Medical Association stimulate suitable legislation on a national level so that physicians and surgeons, licensed by examinations in Illinois, qualify for licensure in all states which recognize the principles of reciprocity." The Reference Committee on Medical Education and Hospitals recommended and the House of Delegates adopted a substitute resolution: "That the Board of Trustees of the American Medical Association be directed to take appropriate steps for the consummation of a study of the problems pertaining to licensure by reciprocity, and that it consult with the Federation of State Medical Boards in an attempt to find a satisfactory solution to this problem." This action was referred to the Council for action and report to the House. The resolution has subsequently been brought to the attention of the officers of the Federation of State Medical Boards for their consideration.

In regard to Resolution 55, introduced at the June, 1958, meeting, concerning Compulsory Assessments and Credits by Hospital Boards of Trustees, the Council wishes to report that copies of a similar resolution (Resolution 59, June, 1957) were mailed to the American Hospital Association, the Catholic Hospital Association, and the Protestant Hospital Association over a year ago and that both Resoltuion 59 (1957) and Resolution 55 (1958) are being brought to the attention of hospital boards, whenever this problem is presented.

Resolution 10 introduced at the June 1958 meeting requested "that the House of Delegates of the American Medical Association take appropriate measures to investigate the feasibility of the use of senior medical students in clinical clerkships in the place of first year interns in university hospitals." The reference committee recommended and the House of Delegates adopted this resolution which has subsequently been transmitted to the Association of American Medical Colleges for their consideration and comment.

Cooperation in Medical Education

In 1942 after consultation with and approval by the Board of Trustees, the Council developed an official working relationship with the Association of American Medical Colleges, the official organization of the medical schools, through the establishment of a Liaison Committee on Medical Education. Through this arrangement, it has been possible to share responsibilities, problems, challenges, and viewpoints in the many areas where the Council and the Association of American Medical Colleges have mutual concern and similar objectives.

The effectiveness and productiveness of this liaison has resulted in the development of somewhat similar working relationships with appropriate organizations in other fields of concern to the Council. Our responsibilities and objectives in graduate medical education and specialty training clearly overlap with those of the Advisory Board for Medical Specialties and with the individual specialty boards. This field of mutual endeavor now has formal expression through a Liaison Committee with the Advisory Board and through the various residency review committees. Similarly, the Internship Review Committee was formed to give other organizations that have a legitimate stake in the internship (e.g., the American Academy of General Practice, the Association of American Medical Colleges, American Hospital Association, Federation of State Boards) an opportunity to share viewpoints and efforts in this part of the Council's activities.

There are many other effective working partnerships now in existence and at the present time, with the concurrence of the Board of Trustees, planning is underway to establish a liaison committee consisting of representatives of our Board, the Council on Medical Education and Hospitals, University Presidents, and the Association of American Medical Colleges. It is believed that this holds great promise for future better understanding and relationships between organized medicine and its agent in medical education, the Council on Medical Education and Hospitals, and universities, who are ultimately responsible for the conduct of medical schools, and the Association of American Medical Colleges, which can be considered as the universities' agent in medical education.

The Council is of the sincere belief, based now on many years of direct experience, that this approach of cooperation and collaboration has worked to the distinct benefit of the Council's major objective as charged by the House of

Delegates many years ago to "make suggestions as to the means and methods by which the American Medical Association may best influence favorably medical education" and to "act as the agent of the American Medical Association (under instructions from the House of Delegates) in its efforts to elevate medical education."

Collaboration with the Association of American Medical Colleges

In cooperation with the Association of American Medical Colleges, the Council on Medical Education and Hospitals has prepared a number of important basic documents dealing with matters of concern in medical education. The former "Essentials of an Acceptable Medical School" prepared by the Council and authorized for publication by the House of Delegates of the American Medical Association has been replaced by "Functions and Structures of a Modern Medical School," representing the combined efforts of both groups. It was approved by the House of Delegates of the American Medical Association in June, 1957, by the Association of American Medical Colleges in October, 1957, and published in the late fall of 1957.

In view of the current interest in the potential development of additional two year basic medical science programs in institutions where such developments have promise, the Council on Medical Education and Hospitals (A. M. A.) and the Association of American Medical Colleges have developed a document on the "Functions and Structure of a Modern School of Basic Medical Sciences." This has been approved by the two Councils and by the Liaison Committee on Medical Education and will be presented and recommended for adoption by the two parent organizations at their next meeting (AAMC, October, 1958; A. M. A., November, 1958). This document will serve as a general guide in establishing and developing such two years programs. It is attached as Appendix A, and the Council seeks approval to use this statement as official policy in the future.

The Association of American Medical Colleges, the Council on Medical Education and Hospitals (A. M. A.) and the Liaison Committee representing the two groups have gone on record as favoring the establishment of two year basic medical science programs wherever the environmental situation is favorable. They have also gone on record as believing there is definite need for the development of additional four year medical schools in keeping with the demands resulting from increasing populations, trends in social and economic characteristics, and the changing dimensions of medical knowledge. Both groups have been contronted with numerous requests to evaluate communities or institutions as possible sites for the development of suitable medical education programs. The two Councils and the Liaison Committee, after giving much thought and study to this matter, have formulated certain basic concepts as to the circumstances under which they will undertake such cooperative studies. These concepts are directed toward initial clarification of the background of the requests and emphasize that the role of the liaison evaluation is not to determine whether any given state or area has need for more facilities for medical education, but to determine whether in a given setting there are sound and logical potentials for the development of either a two year basic medical science program or a four year medical school.

On June 1, 1958, the Council on Medical Education and Hospitals (A. M. A.) and the Executive Council of the Association of American Medical Colleges authorized and published a statement on "The Present and Future Status of Foreign Medical School Credentials in the United States." This statement includes informative data on the Educational Council for Foreign Medical Graduates, the present and future status of the list of foreign medical schools, the present and future status of graduates of foreign medical schools seeking internship and residency training in the United States under the Exchange-Visitor Program, and those entering the United States on permanent (immigration) visas. It also includes information on the status of American citizens studying medicine outside the United States and Canada, the policy of the American Hospital Association concerning graduates of foreign medical schools, and the policy of the National Intern Matching program in regard to such individuals.

For many years the Council on Medical Education and Hospitals has sent out an annual questionnaire to each medical school in the United States and Canada for information on which the data in the Educational Number of THE JOURNAL have been based. In order to overcome needless duplications and to obtain identical and more comprehensive information for the Council on Medical Education and Hospitals and for the Association of American Medical Colleges, this year the annual questionnaire has been developed as a collaborative effort.

In these and many other areas there has been excellent liaison between the American Medical Association and the Association of American Medical Colleges. The "top level" liaison mechanism which has been approved by the Board of Trustees and which will include representation from University presidents and the Association of American Medical Colleges, on the one hand, and the Board of Trustees of the American Medical Association and the Council on Medical Education and Hospitals, on the other hand, holds great promise in the future for the discussion of problems of mutual concern. It should result in minimizing areas of difficulty and misunderstanding such as have been precipitated during recent years by the changing character of medical practice, the changing status of the patient, and the changing character of the faculties of medical schools.

Medical School Studies and Accreditation

One of the important liaison functions of the Council on Medical Education and Hospitals with the Association of American Medical Colleges resides in the continuing study of medical schools in the United States and Canada.

In liaison with the Association of American Medical Colleges and for visits to Canadian medical schools in liaison also with the Association of Canadian Medical Colleges, the following institutions were surveyed by representatives of the Council on Medical Education and Hospitals during the academic year 1957-1958:

University of Kentucky School of Medicine
Dalhousie University Faculty of Medicine
Dartmouth Medical School
University of Manitoba Faculty of Medicine
Johns Hopkins University School of Medicine
University of Pittsburgh School of Medicine
College of Medical Evangelists
Woman's Medical College of Pennsylvania
Seton Hall College of Medicine
Albert Einstein College of Medicine of Yeshiva University
Georgetown University School of Medicine
University of Chicago School of Medicine
University of Florida College of Medicine
University of Arkansas School of Medicine
University of Michigan Medical School

The medical schools of Seton Hall and the University of Florida had the second year of their developing programs underway and both were granted provisional approval for these two years. Albert Einstein College of Medicine had the third year of its program in effect and will be eligible for consideration for full apprroval during the forthcoming academic year. The former two medical schools (Seton Hall and University of Florida) will be similarly eligible in the academic year 1960-1961.

The visit to the University of Kentucky was at the request of university officials to consult with them regarding the development of their final plans for the medical school. It is expected that the first medical class will be enrolled for the 1960-1961 academic year.

The schedule for liaison survey visits for the coming academic year (1958-1959) includes the following institutions:

University of Ottawa Faculty of Medicine
Jefferson Medical College
Yale University School of Medicine
Bowman Gray School of Medicine of Wake Forest College
University of Colorado School of Medicine
Columbia University College of Physicians and Surgeons
Stritch School of Medicine of Loyola University
Albert Einstein College of Medicine of Yeshiva University
University of Kansas School of Medicine
Washington University School of Medicine
Creighton University School of Medicine

Potential Sites for New Medical Schools

During the year covered by this report, committees composed of representatives of the Council on Medical Education and Hospitals and the Association of American Medical Colleges, on invitation of all pertinent agencies, visited San Antonio and Austin in Texas to determine whether these sites appeared to offer a suitable location for the development of a third state owned medical school in Texas. It was concluded that both sites offer a favorable environment for the location of a medical school.

Annual Report on Medical Education in the United States and Canada

One of the original charges given to the Council on Medical Education and Hospitals under which the Council still functions is: "To make an annual report to the House of Delegates on the existing conditions of medical education in the United States." This responsibility is discharged through the annual publication of a comprehensive report in The Journal. The report covering 1956-57 was presented in volume 165, pages 1393-1460 of the Nov. 16, 1957, issue of The Journal and reprints were subsequently directed to members of the House of Delegates. The report covering 1957-1958 will be presented in the Nov. 15, 1958, issue of The Journal and the Council respectfully directs the attention of the House to it. Reprints of the report will be transmitted to members of the House of Delegates as soon as they become available.

Annual Congress on Medical Education and Licensure

The 54th Annual Congress on Medical Education and Licensure was held Feb. 8-11, 1958, in Chicago. The Council is pleased to inform the House of Delegates that again a new attendance record of 997 formal registrants was attained.

A major effort of the 54th Congress was to focus attention on future needs in medical education in relationship not only to the changing dimensions of medical knowledge but also to population trends, the changing characteristics of society, and the changing characteristic of our economy. Emphasis was placed on an attempt to identify in these areas those questions to which answers should be found, in order that future planning in medical education can be placed on as sound basis as possible.

This part of the Congress had more than fifty active participants. In addition to individuals knowledgeable in medical education and practice (Officers and all members of the Board of Trustees played active roles), the participants included respected representatives of higher education, industry, insurance, economics, sociology, demography, labor, agriculture, government, and hospital administration. In a very real sense, it can be said that the producers, distributors, and consumers of medical service all had a voice in these discussions. Attention is now being given to the feasibility of initiating a study directed toward seeking answers to the many important questions which were formulated.

A half day of the Congress was devoted to a consideration of problems in specialty training resulting from the changing status of patients, most particularly that related to the impact of medical care insurance in greatly reducing the numbers of ward service patients. This part of the program was co-sponsored by the Advisory Board for Medical Specialties and distinguished speakers presented the problems and suggested means of overcoming them in each of the major clinical disciplines.

The remainder of the Congress was devoted to activities of the Federation of State Medical Boards of the United States. Its second Examination Institute dealt with Anatomy, Pathology, Surgery, and Bacteriology. The problem of the physician as a drug addict was the subject of the Federation's regular Tuesday morning session.

The papers presented during the Council's program have been published in the May 3 and May 10, 1958, issues of The Journal and collected tear sheet copies have been forwarded to all members of the House of Delegates. The Council is of the opinion that these papers contain a great deal of information of importance in the current setting and respectfully directs the attention of the members of the House of Delegates to them.

The 55th Congress on Medical Education and Licensure scheduled for February 1959 will focus attention on two areas of serious concern in their relation to Medical Education. Specialism and research are both crucial factors in medical education and practice, and promise to play even greater roles in the future. They present tremendous challenges and opportunities but demand careful study and reappraisal, in so far as determining their logical inter-relationship with both medical education and practice.

The Educational Council for Foreign Medical Graduates

This organization is now in active operation and conducted its first complete evaluation of graduates of foreign medical schools in March, 1958. Another examination will be given both in the United States and in 32 testing centers throughout the world in September, 1958. Thereafter it is planned to hold examinations both in the United States and abroad twice each year.

In keeping with policy sanctioned by the House of Delegates when the final report of the Cooperating Committee on Foreign Medical Graduates was approved in June, 1956, the Council (in collaboration with the Association of American Medical Colleges) has announced the withdrawal of the listing of certain foreign medical schools to be effective Jan. 1, 1960. In place of the recommendation that graduates of foreign medical schools on the list be considered on a basis comparable to graduates of our own approved medical schools, after Jan. 1, 1960, the Council recommends that graduates of foreign medical schools who have been successfully certified by the Educational Council for Foreign Medical Graduates be considered on a basis comparable to graduates of our own approved schools.

The Council staff continues to assist this new organization in every manner possible and rather regularly is asked to meet with the Educational Council's Board of Trustees. Although a further period of time will be necessary for the Educational Council to have its full impact, already many specialty boards and licensing boards are taking advantage of this new program.

Committee Activities of the Council

The committee activities of the Council on Medical Education and Hospitals are numerous and demanding of much time and effort on the part of both Council and staff personnel. Such activities are kept to a minimum consistent with conducting the studies and responsibilities connected with the Council's duly designated functions or special assignments.

Standing Committees

Standing Committees include:

Committee on Essentials which is responsible for review, revision, and recommendations regarding the "Essentials" and "Guides" underlying the various education and training programs approved or accredited by the Council.

Liaison Committee on Medical Education which consists of representation from the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges. This Liaison Committee serves a very important function in intercommunication and cooperation between the two parent organizations.

Liaison Committee with the Advisory Board for Medical Specialties which is concerned with matters of mutual interest to the Council and the Advisory Board and which collaborates in planning for the Annual Congress on Medical Education and Licensure.

Residency Review and Conference Committees. The "Background and Development of Residency Review and Conference Committees" is described in detail in a resume prepared by the staff of the Council and published in the September 7, 1957, issue of THE JOURNAL. These committees include representatives of the specialty boards concerned and in certain instances representation from the American College of Physicians or the American College of Surgeons in addition to Council representation. The American Academy of Pediatrics has recently been added to make pediatrics a tripartite committee. These committees meet from one to three times annually to review and take action concerning the approval of graduate education and training programs in their respective fields. These committees have also in certain instances prepared "Guides" to assist individuals and institutions in planning and developing graduate education and training programs as well as aiding field staff personnel in determining those aspects of the program which require special evaluation. Notable among these guides which have been prepared during the past year is the Guide Book for Residency Programs in General Surgery approved by the American Board of Surgery, the American College of Surgeons and the Council, and the three "Guides" for residencies in Aviation Medicine, Occupational Medicine, and Public Health, formulated by the Residency Review Committee for Preventive Medicine and approved by the American Board of Preventive Medicine and the Council.

Council staff personnel function as secretaries of each of the committees and conduct their administrative activities. With the development of a tripartite Residency Review Committee in Obstetrics and Gynecology (Council on Medical Education and Hospitals, American Board of Obstetrics and Gynecology, and American College of Surgeons) there are now 17 active Residency Review and/or Conference Committees, as listed:

Residency Review Committee for Anesthesiology
Residency Review Committee for Dermatology
Residency Review Committee in Internal Medicine (tripartite)
Residency Review Committee for Neurological Surgery
Residency Review Committee for Ophthalmology
Residency Review Committee for Orthopedic Surgery
Residency Review Committee for Otolaryngology (tripartite)
Residency Review Committee for Pediatrics (tripartite)
Residency Review Committee for Physical Medicine and Rehabilitation
Residency Review Committee for Plastic Surgery (tripartite)
Residency Review Committee for Preventive Medicine
Residency Review Committee for Proctology
Residency Review Committee for Psychiatry and Neurology
Residency Review Committee for Radiology
Conference Committee on Graduate Training in Surgery (tripartite)
Residency Review Committee for Urology
Residency Review Committee for Obstetrics and Gynecology (tripartite)

There is also a Residency Review Committee in General Practice on which there is liaison representation from the Council on Medical Education and Hospitals and the American Academy of General Practice.

An Internship Review Committee with representation from the Council, the American Academy of General Practice, the American Hospital Association, the Association of American Medical Colleges, and the Federation of State Medical Boards now reviews all new applications for internship approval or further extension of approval of existing programs and recommends action to the Council.

The Advisory Committee on Physical Therapy Education has multiple representation from groups interested in this field with Council staff personnel conducting its administrative functions.

The Advisory Committee on Occupational Therapy Education has multiple representation from groups interested in the field with Council staff again conducting its administrative functions.

The Committee on Licensure which is a standing committee has held no meetings during the past year.

Other Committees

The *Ad Hoc* Advisory Committee on Postgraduate Medical Education was invited to continue its studies following completion of its initial assignment. Its further activities are described in the section of this report entitled "Postgraduate Medical Education."

Members of the Council have been active participants in the Program Committee Planning the Second World Conference on Medical Education scheduled in Chicago in August 1959.

As indicated earlier in this report, the Council and its staff have been actively engaged in the cooperative Committee on Preparation for General Practice. An important Progress Report has been submitted and a final report should be developed in the near future.

Council and staff members have also participated actively as members or officials of numerous other committees and organizations concerned with problems closely related to or impinging upon the field of medical education, such as:

Joint Commission on Accreditation of Hospitals
National Intern Matching Programs
National Fund for Medical Education (Advisory Council)
American Medical Education Foundation
National Board of Medical Examiners
Federation of State Medical Boards of the United States (Bulletin)
Selective Service System
Education and Training Division, Surgeon General's Office Department of the Army
Education and Training Division, Surgeon General's Office, U. S. A. F.
Experimental Training Grants Committee, National Institutes of Health
National Conference on Public Health Training
Council on Professional Practice A. H. A. (Liaison)
Task Force on Health Manpower

Furthermore, the Council and its staff collaborate with many other organizations and agencies having an interest in one or more aspects of medical education. Such cooperation many entail participation in special committees, consultation or advising, etc. Intercommunication between the Council and these various groups or individuals constitutes one of the demanding functions in terms of time, energy, and basic significance from the standpoint of professional and public relations.

Graduate Medical Education

The Council is responsible for continuous study and concern in the maintenance of appropriate standards in medical education at the graduate level. It collaborates with the Advisory Board for Medical Specialties and with numerous other organizations, as noted in the subsequent sections in this report on the Internship and Residencies, through review committees which are liaison bodies for maintaining training standards in approved internship and residency educational programs. In addition to liaison with these organizations, the Council works closely with the National Intern Matching Plan, the Educational Council for Foreign Medical

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Jefferson Medical College
Yale University School of Medicine
Bowman Gray School of Medicine of Wake Forest College
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Residency Review Committee for Proctology
Residency Review Committee for Psychiatry and Neurology
Residency Review Committee for Radiology
Conference Committee on Graduate Training in Surgery (tripartite)
Residency Review Committee for Urology
Residency Review Committee for Obstetrics and Gynecology (tripartite)

There is also a Residency Review Committee in General Practice on which there is liaison representation from the Council on Medical Education and Hospitals and the American Academy of General Practice.

An Internship Review Committee with representation from the Council, the American Academy of General Practice, the American Hospital Association, the Association of American Medical Colleges, and the Federation of State Medical Boards now reviews all new applications for internship approval or further extension of approval of existing programs and recommends action to the Council.

The Advisory Committee on Physical Therapy Education has multiple representation from groups interested in this field with Council staff personnel conducting its administrative functions.

The Advisory Committee on Occupational Therapy Education has multiple representation from groups interested in the field with Council staff again conducting its administrative functions.

The Committee on Licensure which is a standing committee has held no meetings during the past year.

Other Committees

The *Ad Hoc* Advisory Committee on Postgraduate Medical Education was invited to continue its studies following completion of its initial assignment. Its further activities are described in the section of this report entitled "Postgraduate Medical Education."

Members of the Council have been active participants in the Program Committee Planning the Second World Conference on Medical Education scheduled in Chicago in August 1959.

As indicated earlier in this report, the Council and its staff have been actively engaged in the cooperative Committee on Preparation for General Practice. An important Progress Report has been submitted and a final report should be developed in the near future.

Council and staff members have also participated actively as members or officials of numerous other committees and organizations concerned with problems closely related to or impinging upon the field of medical education, such as:

Joint Commission on Accreditation of Hospitals
National Intern Matching Programs
National Fund for Medical Education (Advisory Council)
American Medical Education Foundation
National Board of Medical Examiners
Federation of State Medical Boards of the United States (Bulletin)
Selective Service System
Education and Training Division, Surgeon General's Office Department of the Army
Education and Training Division, Surgeon General's Office, U. S. A. F.
Experimental Training Grants Committee, National Institutes of Health
National Conference on Public Health Training
Council on Professional Practice A. H. A. (Liaison)
Task Force on Health Manpower

Furthermore, the Council and its staff collaborate with many other organizations and agencies having an interest in one or more aspects of medical education. Such cooperation many entail participation in special committees, consultation or advising, etc. Intercommunication between the Council and these various groups or individuals constitutes one of the demanding functions in terms of time, energy, and basic significance from the standpoint of professional and public relations.

Graduate Medical Education

The Council is responsible for continuous study and concern in the maintenance of appropriate standards in medical education at the graduate level. It collaborates with the Advisory Board for Medical Specialties and with numerous other organizations, as noted in the subsequent sections in this report on the Internship and Residencies, through review committees which are liaison bodies for maintaining training standards in approved internship and residency educational programs. In addition to liaison with these organizations, the Council works closely with the National Intern Matching Plan, the Educational Council for Foreign Medical

Graduates, the educational services of the several federal agencies, and other organizations interested in and concerned with graduate medical education.

The Council compiles data on internship and residencies which are published each fall in THE JOURNAL as an Annual Report on Graduate Medical Education in the United States This report includes an up-to-date listing of all hospitals offering approved intern and/or resident training programs and the current requirements of examining boards in the medical specialties. The criteria used to evaluate educational programs are revised as necessary and are published as approved and authorized by the House of Delegates as "Essentials of an Approved Internship" and "Essentials of Approved Residencies and Fellowships." Other pamphlets concerning graduate medical education are published and revised as needed.

Hospital Survey Programs

Just as the examination and evaluation of basic medical school programs constitutes an important aspect of their accreditation, the examination and analysis of internships and residencies is an essential part of accreditation in graduate medical education and training.

Since January, 1957, the Council on Medical Education and Hospitals, by order of the House of Delegates, has restricted its hospital activities to the survey and evaluation of internships and residencies and their subsequent status. Currently there are six members of the field staff assigned to areas determined on the basis of the number of graduate programs to be evaluated. The current role of the Council in restriction of its activities in this manner has proven satisfactory to both the Council and the Joint Commission on Accreditation of Hospitals.

Field representatives are selected on the basis of their interest, knowledge, and experience in medical education, and on their ability to represent the Council with firmness, tact, and diplomacy. Their function is to act as consultants in regard to intern and resident training programs, aiding hospital administrators and medical staffs in analyzing and understanding their problems and assisting in the interpretation of the standards of graduate medical education. Although their observations and reports constitute important factors in the evaluation and actual accreditation of programs in graduate medical education, the Council does not consider its field staff as a policing group but rather as a consulting and advisory group.

Each field staff representative covers the graduate education and training programs in from 200 to 250 hospitals during an average year, and re-evaluates them at intervals of two to three years. Whenever it is feasible the field staff representatives are invited to sit with Residency Review or Conference Committees during their meetings at which time definitive action is taken regarding approval status.

The accompanying table presents a comparative analysis of the survey activities of the field staff during the past two years:

	1957	1958
Hospitals visited	793	915
Internships reviewed	288	421
Residencies reviewed	1,922	2,168
Total programs reviewed	2,210	2,589

The Council on Medical Education and Hospitals acknowledges with sincere appreciation the untiring efforts of its field representatives in their endeavors to assist in maintaining and improving the high standards of medical education at the intern and residency levels.

The Internship

The Internship Section of the Council is responsible for all activities in connection with the intern training programs in the United States, the Canal Zone, Hawaii, and Puerto Rico. Statistical and information material on internships are prepared in this section for publication in THE JOURNAL as part of The Annual Report on Graduate Education. All other activities regarding the various intern training programs, including correspondence, are handled in this section. The assistant secretary of the Council in charge of this section also acts as the secretary of the Internship Review Committee.

This section works closely with the National Intern Matching Program, collaborating with it in the correlation of its activities with the work on the Council in the internship field.

For the last intern training year (July 1, 1957, to June 30, 1958), there were 1,093 approved intern training programs approved by the Council. Offered in these programs were 12,325 internship positions. These were divided into 842 programs of the rotating type: 34 mixed programs; and 217 programs of straight services. The rotating services comprised 87.6% of the total; mixed 1.6%; and straight services 10.8%. These relative percentages have varied only slightly during the past several years.

Following clarification of the status of the straight internships by the House of Delegates in June, 1957, there has been an increase in the number of approved straight internship programs. Since June, 1957, the following actions have been taken regarding straight internships:

	New Approvals	Dis-approvals	Approval Withdrawn
Straight internships—			
Internal Medicine	4	1	2
Surgery	5	2	1
Pediatrics	5	—	1
Pathology	6	—	—
Obstetrics-gynecology	8	4	—
Totals	28	7	4

The large majority of straight internships are offered by hospitals affiliated with medical schools. Programs of straight internships have increased from 217 on Sept. 1, 1957, to 237 programs offered for the year beginning July 1, 1959. In view of the status of straight internships, as approved by the House of Delegates in June, 1957, this increase has been expected.

The Internship Review Committee and the Council have carefully reviewed each application for straight internship approval during the past year, and have found that approval of the programs indicated above was justified in every instance.

National Intern Matching Program

The National Intern Matching Program continues to serve as the central clearing agency for hospital seeking interns and for medical students desiring internships. For the past seven years, hospitals approved for intern training by the Council on Medical Education and Hospitals and medical students seeking internships have used the NIMP as the official agency for intern procurement. The plan gives complete freedom of choice to both hospitals and students and has received continued support from both groups.

Hospitals approved by the Council submit a Hospital Agreement to the Program in which they agree to interview only students who participate in the Program and to accept all interns matched to them. Students submit similar agreements, stating they will apply only to participating hospitals and will accept the hospital to which they are matched. Hospitals and students make contact with each other by means of the NIMP Directory. Hospitals receive a Directory of all participating students, and students receive a hospital Directory in which are listed all participating hospitals and the type and number of internships each offers. Hospitals are free to interview as many applicants as possible, using any means of evaluation they desire.

The Matching Program has matched more than 42,000 students with no reported error to date. The policies and general management of the program are governed by the organizations most interested in medical education at the intern level. These organizations include, in addition to the Council on Medical Education and Hospitals, the American Hospital Association, the Association of American Medical Colleges, the Catholic Hospital Association, the American Protestant Hospital Association, and the Student American Medical Association. Further assistance is given by liaison representatives from the Army, Navy, Air Force, and the Public Health Service.

The Program covers internships beginning between April 1 and Dec. 31. In Program VII for 1958 internships, 819 hospitals offered 11,958 positions, while 7,131 students participated in the program. Of this number, 6,734 (94%) were matched. Of the matched students, 88% went to hospitals of their first or second choice. Conversely, 89% of the hospitals received medical students whom they had selected as first or second choice.

All of the above figures include those graduates of foreign medical schools who participated in Program VII. Out of the 376 participating, 224 were matched. For Program VIII (the next matching), NIMP will require certification by the Educational Council for Foreign Medical Graduates. This will undoubtedly reduce the number of foreign graduates participating in the next matching.

Residencies

At the present time approval of programs for residency training may be granted in 28 areas. This includes programs in pediatric allergy, a category which is published for the first time in the 1958 Internship and Residency Number of The Journal. It also includes three preventive medicine specialties: aviation medicine, occupational medicine, and public health. Separate approval is offered in obstetrics and gynecology, or in a combined obstetrics-gynecology program. Likewise, approval is granted to separate or combined programs of psychiatry and neurology, and in pathologic anatomy and clinical pathology.

In the 1958 Internship and Residency Number of The Journal, no programs are listed in malignant disease since, after two years of notice to the hospitals concerned, such programs will not be approved after July 1, 1959.

The policy of requiring residency training programs to provide full training in a specialty—either intramurally or through affiliation with another program—has been adopted in a number of specialties. For some time, this policy has been in effect for programs in allergy, anesthesiology, cardiovascular disease, gastroenterology, orthopedic surgery, pediatrics, otolaryngology, plastic surgery, radiology, general surgery, and urology. During the past year, physical medicine and rehabilitation and proctology have been added to this group. Consideration is being given currently to adoption of this requirement in other specialty fields.

These policies have been adopted to preclude the possibility of a resident's taking his training in two or three isolated programs with no assurance of continuity of supervised experience or progression of responsibility. Hospitals which offer residencies in these specialties may offer periods of training of varied length; however, these residencies provide training as a part of a coordinated and integrated educational experience. The Council considers the principle of continuity in full training programs to be eminently sound and supports efforts directed toward this end.

On Sept. 1, 1958, 1,248 hospitals offered 5,299 approved residency training programs, involving 30,595 positions.

Revision of Essentials for Residency Training

Minor changes have been made in the Essentials for an Approved Residency in Anesthesiology, primarily for purposes of clarification. The section which reads as follows:

> "However, should a residency program consist of three years, one year of research if contained therein may be accredited as stated below.
>
> An exchange residency relationship between hospitals of equal caliber may be desired and acceptable."

was deleted and was replaced by the following statement:

> "Under current regulations, if a candidate elects to take additional training he may apply for approval of this training to the Secretary of the American Board of Anesthesiology, Inc."

The Council recommended approval of this minor editorial revision which is being referred for the information of the House of Delegates.

The Committee on Essentials noted certain discrepancies between the Essentials for Residencies in General Surgery and the Guide Book for Residency Programs in General Surgery which had been prepared by the Conference Committee on Graduate Training in Surgery. In order to bring these into complete agreement and to avoid possible misinterpretations, the Committee on Essentials recommended and the Council approved that the section in the Essentials of Residencies in General Surgery reading as follows be deleted:

> "It is desirable, and in most programs it is possible, to have the resident assigned for a period of service in the department of pathology."

This is replaced by the following statement:

> "Hospitals might wish to consider in four year residencies exclusive assignments of up to six months' duration to surgical pathology, and in three year residencies, part-time assignments to pathology."

This editorial revision eliminates the discrepancies referred to above and is referred to the House of Delegates for information.

In Neurological Surgery and Urology definite changes of meaning have been made in the Essentials and these changes are referred to the House of Delegates with the recommendation that they be approved.

For Neurological Surgery, the changes are as follows: Basically, these new Essentials follow the old ones with only minor revisions in wording, most of which are in the direction of brevity. The chief changes are to provide four years of training in accordance with the Board's new requirements for certification, and to omit the requirement of a straight internship in surgery. There are also changes in the quantitative requirements for approval. These new quantitative requirements of 200 major neurological procedures and 25 surgically verified intracranial tumors, although they have not been included in the Essentials, have as a practical manner, been the criteria by which the Residency Review Committee has judged programs.

For Urology the changes are of sufficient magnitude so that the complete revision is included in *Appendix B.* The Council has approved these revisions and recommends their adoption by the House of Delegates.

Postgraduate Medical Education

The *Ad Hoc* Advisory Committee on Postgraduate Medical Education, appointed in 1956 for the formulation of a program of action whereby the Council can provide the greatest assistance in the continuation education of physicians in practice, continued its studies in 1957 and 1958. It is still at work. The Committee consists of the following members:

Clarence E. de la Chapelle, M.D., Professor of Medicine and Associate Dean, New York University Post-Graduate School of Medicine, also a member of the Continuation Education Committee, Association of American Medical Colleges;

John Conlin, M.D., Director, Boston City Hospital, and previously director for postgraduate medical education of the Massachusetts Medical Society;

Mahlon Delp, M.D., Professor of Medicine and Director of the Department of Postgraduate Medical Education, University of Kansas School of Medicine;
James T. Howell, M.D., Director of Medical Education, Henry Ford Hospital, Detroit, representing Dr. Edwin Crosby, American Hospital Association;
Harold Jeghers, M.D., Professor of Medicine and Chairman of Department, Georgetown University School of Medicine (since moved to similar position at Seton Hall);
William B. Hildebrand, M.D., general practitioner, Menasha, Wisconsin, and former president, American Academy of General Practice;
Matthew R. Kinde, M.D., Director of Division of Medicine and Public Health, W. K. Kellogg Foundation;
Samuel Proger, M.D., Professor and Chairman of the Department of Medicine, Tufts University School of Medicine, President of Bingham Associates, and, in 1956, a member of the Continuation Education Committee of the Association of American Medical Colleges;
John Sheldon, M.D., Professor of Medicine and Director, Department of Postgraduate Medicine, University of Michigan School of Medicine;
Cassius J. Van Slyke, M.D., Associate Director, National Institute of Health;
Edward L. Turner, M.D., Secretary of the Council on Medical Education and Hospitals;
John C. Leonard, M.D., Director of Medical Education, Hartford Hospital (Conn.) and member Board of Governors, American College of Physicians, Chairman of Advisory Committee;
Glen R. Shepherd, M.D., Assistant Secretary of the Council on Medical Education and Hospitals, Secretary of the Advisory Committee.

The Guide Regarding Objectives and Basic Principles of Postgraduate Medical Education Programs which was the initial product of this Committee was published in July, 1957, following approval with minor revision by the House of Delegates. There continues to be a steady request for copies, despite wide distribution initially to medical schools, hospitals, medical societies, and others sponsoring programs.

It should be noted that the Introduction and the Summary in the Guide as approved by the House of Delegates contained the following sentence: "After a suitable period following publication of this Guide, a continuing appraisal of postgraduate programs may be initiated." After further intensive study of this during the past year, the Advisory Committee in its latest recommendations to the Council reiterated the following reasons for advocating a program of appraisal of the educational resources of institutions and organizations for postgraduate courses:

(1) High quality courses stimulate physicians to seek further education, while discouraging such an attitude is the physician's justifiable disappointment at the organization, quality, content, or methodology of a poor course;
(2) Appraisal would seem desirable in itself to indicate those courses which are educationally worthy of a physician's time and money;
(3) The present annual list of unappraised courses may be injuring the opportunity of raising educational standards in this field by giving tacit approval to some comparatively unsatisfactory activities;
(4) A continuing appraisal program, carefully conceived and flexibly implemented, that influenced the annual list would almost surely attract thoughtful attention to the basic guide as well as provide an additional incentive for the sponsors of programs to increase their educational merit; and
(5) Appraisal of postgraduate programs and the application of such appraisal to the preparation of the annual list of courses published in The Journal of the American Medical Association would be consistent with long-standing Council policies in listing medical schools, internships and residencies, that have been helpful in raising educational standards in undergraduate and graduate medical education.

It is considered impracticable if not impossible to appraise each postgraduate course separately. The most reasonable and effective approach is considered to be developing means of appraising the postgraduate educational resources and activities of the institutions and organizations sponsoring formal programs. Initially this will be limited to those sponsoring courses, using the Guide as a general reference. The studies and recommendations of the Advisory Committee and the staff are assisting the Council materially in formulating a program of appraisal and in testing it. Although the mechanisms developed appear to be satisfactory, only their further trial up to the point of publishing a selective listing of postgraduate courses can provide the data needed by the Council for further action.

The 57th Annual Report on Medical Education in the United States and Canada, prepared by the Council, contained a definitive analysis of postgraduate course activities and enrollments in the 1956-1957 year (*J. A. M. A.* 165:1431-1437 [Nov. 16] 1957).

A geographical study of postgraduate medical education centers and the origins of their physician enrollments is well advanced. It was begun in the summer of 1957 on the basis of data collected during the 1956-1957 year. When the geographical study is published, it is likely that it will provide new information useful to many who are concerned in the future planning of courses.

The current annual list, Postgraduate Courses for Physicians, will be published in The Journal Aug. 16, 1958, for courses in the year beginning Sept. 1, 1958. Occupying 58 pages, six more than last year, the list comprises 1,071 postgraduate course title listings. Considering that many courses are repeated during the year, more than 1,200 course offerings are listed. The annual list is based on inquiries each spring to all medical schools, hospitals approved for internship and/or residency training, medical societies, and other institutions and organizations in the United States. It is encouraging to note that a greater number of the sponsoring groups are planning postgraduate courses further in advance, are limiting enrollments, and consequently appear able to utilize more effective educational methods.

Educated in Related Fields

In recognition of the important contributions by professional and technical groups closely related to medicine to advances in knowledge, education, research, and the provision of comprehensive care to patients under the direction of physicians, the Council is responsible for continuous study and liaison on educational matters in a number of fields related to medicine. Continuing advice and assistance are given the Council by numerous medical organizations, such as the American Society of Clinical Pathologists and the American College of Radiology, as well as nonmedical professional and technical societies, in the development of sound criteria for training and approval of curricula. During the past year, the House of Delegates approved a revision of criteria for training medical technologists on which the Council received the essential advice of the Board of Schools of Medical Technology, Board of Registry of Medical Technologists, and Executive Committee of the American Society of Clinical Pathologists, and the American Society of Medical Technologists. The Council is currently engaged in approval of schools for medical record librarians, medical record technicians, medical technologists, occupational therapists, physical therapists, and x-ray technicians. Several hundred survey-visits are made annually to schools of medical technology and x-ray technology by pathologists and radiologists, who are appointed by the American Society of Clinical Pathologists and the American College of Radiology, respectively. These physicians generously contribute their time and experience to make these visits without remuneration. The education director of the American Association of Medical Record Librarians effectively surveys educational programs in universities and hospitals for medical record librarians and technicians. The educational committees and staff therapists of the American Occupational Therapy Association and the American Physical Therapy Association are active in evaluation and survey of medical schools, colleges, universities, and hospitals seeking initial and continued approval for occupational therapy and physical therapy curricula. Physician-therapist survey teams make these visits. As of June 30, 1958, there were 1,345 approved schools, which included 30 for medical record librarians, 11 for medical record technicians, 680 for medical technologists, 29 for occupational therapists, 37 for physical therapists, and 558 for x-ray technicians.

A jointly constituted Board of Trustees-Council Committee, with representation from the Council on Mental Health, entitled the Joint Committee to Study Paramedical Areas in Relation to Medicine, has under active study an exploration of ways in which closer liaison might be developed between physicians and closely related professional and technical groups. Initial conferences with more than 50 representatives of national medical organizations have been held during the past year and future conferences with professional and technical groups are planned.

Council Publications

The staff of the Council on Medical Education and Hospitals is responsible for the collection of information and compilation of data for four special issues of THE JOURNAL. These include:

Medical Licensure Statistics (1957), May 31, 1958
Postgraduate Courses for Physicians (Sept. 1, 1958-Aug. 31, 1959), Aug. 16, 1958
Directory and Annual Report of Approved Internships and Residencies (1958), Oct. 4, 1958
Medical Education in the United States and Canada (1957-58), Nov. 15, 1958

The Council staff also prepared special articles and editorials for THE JOURNAL and assists in editing the *Federation Bulletin* (published monthly by the Federation of State Medical Boards of the United States). The various "Essentials" in regard to education and training programs are constantly being subjected to study and revision and after approval of the House of Delegates are then published. These include:

Essentials for Approved Examining Boards in Specialties
Essentials of an Approved Internship
Essentials of Approved Residencies and Fellowships
Essentials of an Accredited School of X-ray Technology
Essentials of an Acceptable School of Physical Therapy
Essentials of an Acceptable School of Occupational Therapy
Essentials of an Acceptable School of Medical Technology
Essentials of an Acceptable School for Medical Record Librarians
Essentials of an Acceptable School for Medical Record Technicians
Functions and Structure of a Modern Medical School (replacing former Essentials of an Acceptable Medical School)

Currently available pamphlets and reprints, in addition to those listed above, include:

A Guide Regarding Objectives and Basic Principles of Postgraduate Medical Education
Choice of a Medical School
The Present and Future Status of Foreign Medical School Credentials in the United States
A History of the Council on Medical Education and Hospitals
Background and Development of Residency Review and Conference Committees
Selected Papers from the Annual Congress on Medical Education and Licensure (1958)

The Council staff also carries the responsibility for preparation of the listings which appear weekly in THE JOURNAL covering scheduled examinations and reciprocity meetings of the boards of medical licensure, basic science boards, examining boards in the medical specialties, and the qualifying examinations of the Educational Council for Foreign Medical Graduates.

Changes in Council and Staff Personnel and Organization

At the time of the June meeting in San Francisco (1958) Dr. Victor Johnson's term of eligibility for Council membership expired and the House of Delegates elected as his successor Dr. John Z. Bowers, Dean of the School of Medicine for the University of Wisconsin.

During the course of the year, Dr. Joseph J. A. McMullin retired from the field staff and Dr. Morris Weiss, an internist, joined the field staff. At the time of this report, there is one vacancy on the field staff for which a suitable candidate is being sought. Every possible effort is being made in the selection of these Council representatives to obtain individuals with the background and experience essential to their full appreciation of the problems with which they must deal in effectively evaluating programs of graduate medical education and training and in appropriately representing American medicine in the course of such activities.

On Aug. 1, 1958, Dr. Arthur N. Springall, Assistant Secretary of the Council resigned to become Director of Professional Services of the Veterans Administration Hospital at Oklahoma City. During the past two years of his five-year association with the Council, Dr. Springall has coordinated the activities of the field staff and served as administrative secretary of a number of the residency review committees. He was largely responsible for the establishment of the Internship Review Committee which has functioned so effectively during the past three years. Dr. Springall was succeeded on Aug. 1, 1958, by Dr. John C. Nunemaker who has directed the Education and Training Division of the Department of Medicine and Surgery of the Veterans Administration for the past several years. Dr. Nunemaker joins the staff as Associate Secretary and will be in direct charge of the graduate education and training activities of the Council.

Development and Needs

In the current setting there is need for constant re-evaluation of the activities of any organization such as the Council on Medical Education and Hospitals. Both the Council and its staff separately and collectively have endeavored to evaluate current activities and project needs for future activities as well as ways and means of rendering the best possible service to American medicine in the future. The Council believes that better intercommunication and closer liaison with other organizations concerned with medical education, research, and care, as well as closely allied fields, is essential to the best interests of all, and it will continue to exert itself to this end.

The Council is fully aware of the fact that there is room for improvement in every facet of its current responsibilities and will endeavor to continue to adjust its program to meet as effectively as possible the challenges with which it is presented. Basic medical education, graduate medical education, postgraduate medical education, as well as the interrelationship of education in areas closely allied with medicine, represent constant challenges necessitating continuing alertness, study, and adjustment. Top caliber personnel, fully aware of the changing scene and prepared to effectively aid in meeting and helping to solve these situations, will constitute a continuing need.

The rising costs on all sides of labor, printing, transportation, maintenance, and suitably qualified personnel will necessitate an augmented budget, simply to maintain the current level of activity.

Appreciation

The Council on Medical Education and Hospitals wishes to express deep and sincere appreciation to Dr. Victor Johnson for the outstanding contributions which he has made in the interests of the Council and of the American Medical Association. From 1943-1947 Dr. Johnson served as Secretary of the Council and from 1947-1958 has been one of its valuable and constructive members. His contributions in the interest of high standards in all areas of medical education have aided in the establishment of objectives which will be sought for many years to come.

Appreciation is also extended to Dr. Joseph J. A. McMullin for his contribution as a member of the field staff. Dr. McMullin has retired to his home in Riverside, Calif. The Council is grateful to Dr. Arthur N. Springall for his fine contribution and cooperation in the area of graduate medical education and extends the best of good wishes for happiness and success in his new assignment with the Veterans Administration.

The members of the Council and its staff are particularly appreciative of the fine work of Mrs. Anne Tipner and the personnel who work under her general supervision in conducting the routine activities of the headquarters office.

The support, encouragement, and cooperation which the Council has received from the Officers, Board of Trustees, members of the House of Delegates, other Councils and Bureaus of the American Medical Association, as well as that of the many organizations and agencies with which it has worked during the past year, are most sincerely appreciated.

Respectfully submitted,
Leland S. McKittrick, M.D., Chairman
Warde B. Allan, M.D.
John Z. Bowers, M.D.
W. Andrew Bunten, M.D.
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John W. Cline, M.D.
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Charles T. Stone, M.D.
W. Clarke Wescoe, M.D.
Edward L. Turner, M.D., Secretary

Appendix A.—Functions and Structure of a Modern School of Basic Medical Sciences

I. Introduction

The Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association believe that two-year schools of Basic Medical Sciences under appropriate circumstances can make now and for the foreseeable future significant contributions to the established goals of medical education in the United States.

The increasing demands for medical services of a rapidly expanding and changing society can be served most effectively both by the development of new educational facilities in medicine and by the most efficient utilization of those facilities already in existence. Because of the early attrition of students and the ability of clinical facilities to accommodate greater numbers of students than basic science facilities, existing four-year schools can accept 300 to 400 more students for the last two medical school years than are presently enrolled.

The development of several new schools of basic medical sciences could result in the addition of more than 300 medical graduates annually. This increment would be obtained at least cost under these circumstances because of the lower capital and operating expenses of two-year programs and the more efficient utilization of already existing facilities for the last two medical school years. Students satisfactorily completing such two-year programs in the past have been successful in transferring to the third year classes of four-year institutions.

The initiation of new two-year programs should offer interesting and effective opportunities for furthering a closer and more meaningful relationship between liberal education and early education in medicine. The faculty and facilities of the basic medical sciences would add breadth and depth in biological disciplines important to much of the overall university program. One such significant feature would be the development of graduate degree programs in these sciences for the education of future teachers and investigators.

In view of these facts, the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association wish to encourage universities with the necessary resources to establish new programs in medical education which would offer the first two years of the four-year medical course. These two organizations stand ready to consult with universities considering such a development.

It is intended that the following material be used as a guide in the development of two-year basic medical science programs with the hope that it may assist in attaining medical education of ever higher standards. Experience indicates that these are best nurtured in an environment in which there is not excessive concern with standardization. The concepts expressed here will serve as general but not specific criteria in the school accreditation program. However, it is urged that this document not be interpreted as an obstacle to soundly conceived experimentation in medical education including its administrative patterns.

While the terms "school" and "dean" appear throughout this statement, this is not done with the intention of placing sharp limitations around the manner in which a university may approach the development of a program offering the first two years of the medical curriculum. These are days of rapid growth in the breadth and depth of the knowledge important to medicine. As a consequence, if a university should wish to develop a program in the basic medical sciences within the framework of existing liberal arts and graduate resources, even relating this program to others in the social, biological and related physical sciences, the Council on Medical Education and Hospitals and the Association of American Medical Colleges will look upon such with great, albeit critical interest. The objectives of such an arrangement must be to raise educational standards as well as to conserve and make for the more effective and efficient use of faculty and physical resources.

II. The Responsibilities and Objectives of a School of the Basic Medical Sciences

As an institution of higher education, a school of the basic medical sciences has in common with four year medical schools three inherent responsibilities which are so closely related as to be inseparable.

1. It should provide for its students the opportunity to acquire a sound education in the sciences basic to medicine and should foster the development of lifelong habits of scholarship.
2. It should contribute to the advancement of knowledge through research.
3. It should contribute to the development of teachers, investigators and practitioners.

By virtue of its university orientation or as a result of the clinical facilities and personnel available, a school of the basic medical sciences should assume additional responsibilities such as those listed below to the degree that its resources permit without weakening its basic program:

1. Leadership in the development of adequate opportunities for the continuing education of practicing physicians.
2. Professional service to patients primarily to fulfill its educational and research obligations.
3. Participation in the educational programs of other professions in the health field, such as dentistry, nursing, and pharmacy, as well as in selected areas of the general university program.

4. Training of technical personnel in paramedical fields. The school should develop a clear definition of its total objectives. When these objectives are clearly defined, they should be made familiar to faculty and students alike, so that efforts of all will be directed toward their achievement.

A statement of "The Objectives of Undergraduate Medical Education" has been prepared by the Association of American Medical Colleges. It is believed that this can well serve as the basis for a definition of this portion of the overall objective of a school of the basic medical sciences and is reproduced in part below. The full statement can be found in the Journal of Medical Education (28:57-59, March, 1953):

"Undergraduate medical education must provide a solid foundation for the future physician's development. It should not aim at presenting the complete, detailed, systematic body of knowledge concerning each and every medical and related discipline. Rather, it must provide the setting in which the student can learn fundamental principles applicable to the whole body of medical knowledge, establish habits of reasoned and critical judgment of evidence and experience, and develop an ability to use these principles and judgments wisely in solving problems of health and disease.

"Undergraduate medical education cannot achieve these aims if the student is relegated to a passive role. It must provide incentive for active learning on the part of the student. This can best be done by giving him definite responsibility in real day-to-day problems of health and disease. This responsibility must, of course, be carefully graded to the student's ability and experience and must be exercised under careful guidance by the faculty.

"Given incentive to learn and guidance toward the grasp of principles, with the problems of health and disease as a frame for reference, the student will build the necessary foundation for his career in medicine, be it practice (general or limited), teaching, research or administration.

"In working toward this fundamental objective, undergraduate medical schools must strive to help the student to: acquire basic professional knowledge; establish essential habits; attain clinical and social skills necessary to the best utilization of that knowledge; and develop those basic intellectual attitudes, and ethical or moral principles which are essential if he is to gain and maintain the confidence and trust of those whom he treats, the respect of those with whom he works and the support of the community in which he lives.

"These . . . aims are obviously not distinctly separable, but are mutually interdependent. Altogether they summarize the desirable characteristics of the responsible professional person medical education is attempting to produce."

Though a school of basic medical sciences provides only half of the four medical school years, the objectives of the two year school should embrace the foregoing rather than be undesirably limited. Whether he be in a two-year school of the medical sciences or in a four-year medical school, the medical student is essentially a student at the graduate level who benefits most from an educational program having such an orientation.

III. Organization and Administration

A. Governing Body.—A school of the basic medical sciences is conceived as an integral part of a university which alone can provide the milieu and support required for medical study.

Officers and faculty of the school should be appointed by the University Board of Trustees. In keeping with generally accepted principles of administration, it is usually not desirable for a member of the board of trustees to serve simultaneously as an administrator or a member of the faculty of the school of basic medical sciences.

The manner in which the school is expected to conduct its affairs, including the responsibilities and privileges of administrative officers, faculty, and students should be clearly indicated in bylaws approved for the school itself or adequately presented in the bylaws of the parent university.

B. Administrative Officers of the School.—There should be competent supervision of the school of basic medical sciences by the dean or other executive officer who, by training and experience, is qualified to provide leadership in interpreting high standards in medical education, and who has sufficient authority to implement such standards. The dean should have the respect and support of the faculty and ready access to the university president and other officials. The establishment and maintenance of a congenial and productive relationship with the local medical profession is desirable and important to the school and the profession. It can be best assured through discussions of mutual problems by representatives of the school and practicing profession.

Because of the diverse and heavy responsibilities placed upon the dean or executive officer, assistance by suitably qualified persons should be provided. In some schools, for example, there is an assistant dean who devotes major attention to student affairs. In the conduct of the fiscal affairs of the school, the dean should have the assistance of a capable business officer.

C. Faculty Organization.—The faculty should be organized into suitable departments representing those areas or disciplines with a major responsibility in the teaching program. It is to be noted that this is primarily an administrative convenience; it should not form the sole basis for structuring the curriculum. Each such department should have a voice, through appropriate committees of the faculty, in the administration of the academic affairs of the school. Foremost among these should be an executive committee of the faculty composed primarily of the responsible administrative officials and the chairmen of those departments which have a major role in the education program. In a school of basic medical sciences usually these would be Anatomy, Physiology, Biochemistry, Microbiology, Pharmacology and Pathology. The clinical areas of Medicine, Surgery, Pediatrics, Obstretics-Gynecology, Psychiatry, and Preventive Medicine and Public Health may be represented singly or as combined areas. In the latter instance, consideration should be given to allowing a reasonable voice to clinical viewpoints in the committee's major function of determining, with the dean, medical school policies for consideration, where indicated, by higher university authority.

It is recognized that the clinical disciplines in a school of the basic medical sciences have quantitatively less responsibility in the total program of the school than do the clinical departments of a four-year medical school. In consequence, it is possible that the clinical departmentalization of the school of basic medical sciences might follow a different pattern than of having a separate department for each major clinical field, as is the case with four-year medical schools.

There should be such additional committees of the faculty as admissions, promotions, curriculum, postgraduate medical education, library, and others needed to serve the welfare of the school.

The entire faculty should meet one or more times annually to provide an opportunity for all faculty members to become acquainted with and to discuss school policies and practices.

Nominations for faculty appointments should originate in the faculty under the leadership of the dean. Commonly, nominations for appointments at the lower academic ranks are made by the head of the department concerned, after thorough discussions of the nominees by the entire department. At the professorial and associate professorial levels this procedure may be profitably supplemented or supplanted by the appointment of a nominating committee composed of members of several departments, whose standing and judgment are generally unquestioned. Recommendations are made to the faculty executive committee and dean who, in turn, recommend to the president and board of trustees through esablished administrative channels.

D. Finances.—Experience has established that a school of the basic medical sciences cannot successfully carry out its many activities solely on the income derived from student fees. Furthermore, certain of these activities are not directed primarily to the education of the medical student and he should not be expected to support them. To fulfill its obligation adequately a school of the medical sciences should have other substantial sources of revenue.

Each department within the school should prepare its budget in consultation with the dean, who is ultimately responsible for the total budget and its presentation to the proper authority.

IV. Faculty

The school should have a competent staff with demonstrated interest and ability in teaching and research. Such dual activity by the faculty is most likely to provide the educational milieu appropriate in a modern school of the basic medical sciences as well as to carry out best its objectives and responsibilities.

Reasonable security of tenure and possibility of advancement should be assured in order that the personnel of the faculty may have adequate stability.

The faculty in the basic science disciplines should be almost entirely on a full time basis. The number of such instructors in each basic science department should be sufficient to meet the requirements of the educational program as well as allow adequate time for research by each instructor. The ratio of full time basic science teachers to students may vary in different departments and different schools, depending on course content, educational methods, the nature and extent of research activities and other factors.

In addition, there should be a nucleus of faculty, adequately representing clinical interests, who have as their major responsibility the planning and supervision of the clinical aspects of the teaching program, its relationship to the basic medical sciences, as well as the conduct of research. The size of this nucleus and the specific clinical fields represented will depend, among other factors, on the number of physicians qualified and available to serve as part time and volunteer staff in the major clinical disciplines which will have significant teaching responsibility. Close contact of medical students with clinical teachers as the latter relate themselves to patients in a hospital setting will aid in the inculcation of the ethics and ideals of medicine at an early stage in the students' career.

Modern trends in medical education have resulted in interdigitation of teaching in basic science and clinical areas, so that the latter occurs to a significant degree and in the first two years of the curriculum. Similarly, basic science and clinical faculty members find a close and continuing relationship of great benefit in their research efforts. These desirable trends should find expression in a school of basic medical sciences to prevent it from being simply a "preclinical" institution.

Recognition of the value of intimate teacher-student relationships and widespread use of methods favoring an active role for the student in his own education have decreased dependence on didactic exercises. Increasing use has also been made of interdepartmental teaching. These factors have tended to increase the size of the instructional staff.

V. Students

The admission of students to a school of the basic medical sciences should be the responsibility of a committee of the faculty. Decisions regarding admission should be based not only on satisfactory prior scholastic accomplishment but also on such factors as personality and emotional characteristics, motivation, industry, resourcefulness, and health. Evaluation of these factors should be developed through personal interviews, college records of academic and non-academic activities, results of medical college admission tests, and pertinent letters of recommendation. All records dealing with admissions should be carefully filed and procedures periodically reviewed in a search for better methods. Of assistance in this would be the securing of information regarding student achievement from the four-year medical schools to which the students of the two-year school transferred.

At least three years of college education is required for most students and four years is recommended as a preparation for medical study. Only rarely and under exceptional circumstances will a medical school be justified in admitting a superior student after two years of college study. The National Committee of Regional Accrediting Agencies maintains a listing of institutions of higher education which have been found to offer commendable educational programs. (A copy can be obtained by addressing the National Commission on Accrediting, 1785 Massachusetts Ave., N. W., Washington 6, D. C.) Prospective medical students should acquire their preparatory education at a college of arts and sciences so listed. The admissions committee of a school of the basic medical sciences should scrutinize with particular care the qualifications of applicants whose preparatory study has been done at other institutions.

Because basic knowledge of biology, physics, inorganic and organic chemistry and human behavior are the foundation stones of medicine, adequate college courses in these subjects, as well as demonstrated competence in English, should be required. It is important that any medical college restrict its admission requirements to this minimum so that a college student preparing for the study of medicine will have the opportunity to acquire a broad liberal education or to study a specific field in depth according to individual interest and ability. The complexity of modern medicine can be served best by physicians who in composite represent a variety of backgrounds in education and experience.

The number of students who can have an adequate medical education in the first two years is related to the laboratory and clinical facilities available and to the size and qualifications of the teaching staff (see also: *IV. Faculty*). A close personal contact between students and members of the teaching staff results in a quality of educational experience that is not possible in an institution where the number of students is excessive in relation to the staff and facilities.

There should be a system of student records showing conveniently and in detail the admissions credentials as well as the grades or other records of performance in the school, by means of which an exact knowledge can be obtained regarding each student's work and qualifications. Subjective evaluations of each student by instructors should be included in the student records.

An adequate provision for student counselling should be in effect. Many schools have an assistant responsible to the dean for such counselling.

There should be an active student health service providing for periodic medical examination and medical care for the student body. This is important not only in the maintenance of student health but also because of its inherent educational values.

VI. Facilities

A school of the basic medical sciences should own or enjoy the assured use of buildings and equipment adequate quantitatively and qualitatively to provide an environment most conducive to productivity of faculty and students in the fulfillment of the total objectives of the school. If possible, all of the basic medical sciences should be housed in a building close enough to the clinical facilities so as to promote cooperative teaching efforts and allow all departments ready access to clinical material.

A well maintained and catalogued medical library that can be used conveniently and effectively by both students and faculty is essential to modern medical education. A trained librarian with experience in medical library work should be employed to supervise the development and operation of the library with the advice and assistance of an active representative committee of the faculty. The library should receive regularly the leading medical periodicals, the current numbers of which should be readily accessible. Adequate arrangements should be made by the librarian and the faculty to instruct all students in the use of the library at the beginning of their medical studies.

The school should have the assured use of a number of hospital beds adequate to meet the clinical needs of the teaching program. It is essential that the clinical teachers, either on nomination by the school or by agreement in conference between school and hospital, be appointed by the hospital trustees to appropriate positions on the hospital staff so that their direction of the teaching service will be unquestioned. It is desirable for the teaching hospital to be in close proximity to the school and it should provide sufficient patients for instruction in physical diagnosis and to introduce students to the clinical study of disease as well as to illustrate the clinical aspects of the basic medical sciences.

There should be sufficient offices, laboratories, and conference rooms in the basic science facility and either as a part of or conveniently close to the hospital to meet the needs of faculty and students.

VII. Educational Program

Before the curriculum, methods and details of an educational program are determined, the objectives of the program should be formulated. The objectives should indicate clearly that the first two years of medical education are to provide the foundation for further education in a four-year medical school, in graduate programs, as well as throughout professional life. There is no objection to the awarding of an appropriate degree when indicated.

The educational program of a school of the basic medical sciences must, in part, be conditioned by the general pattern of the first two year curriculum of four-year schools. However, the program should be structured primarily to provide students with an opportunity to acquire a sound background in the basic medical sciences and an introduction to the major clinical disciplines. Because of the variations present in the curriculum of different medical schools, any attempt by a school of basic medical sciences to embrace the variations present in several four-year medical schools would lead to a confused preoccupation with coverage of the details of many subjects. This would hamper the students' acquisition of an understanding of basic principles upon which they can structure necessary facts and would inhibit the important development of sound attitudes of self-education and essential habits of reasoned and critical judgment.

No rigid curriculum can be prescribed for accomplishing the objectives of medical education. On the contrary, it is the responsibility of the faculty of each school continually to reevaluate its curriculum and to provide in accordance with its own particular setting and in recognition of advances in science a sound and well-integrated educational program. Each school should utilize those methods and approaches that the particular interests and abilities of the faculty indicate would provide the most effective education in the framework of the available facilities. The traditionally separate disciplines are finding rewarding educational and research results in working together co-operatively.

Through the various educational methods and to the extent deemed best by the faculty to accomplish the objectives of medical education, each school of basic medical sciences should offer education in the following subjects during the two-year curriculum:

Human anatomy, biochemistry, physiology, microbiology, pharmacology, general pathology, physical and laboratory diagnosis, as well as an introduction to clinical medicine, surgery, obstetrics-gynecology, pediatrics, psychiatry, and preventive medicine and public health as appropriate to the curriculum of the first two years. Biostatistics and medical genetics should be included in the educational program, as also should an initial consideration of social, emotional and environmental factors in health and disease.

The traditional emphasis on lectures, demonstrations and amphitheater clinics in which the role of the student is passive has shifted to greater use of individual student and small group projects, conferences, seminars, and the "case method" of education, in all of which the student actively participates in his own education. The allotment of some unscheduled student time in the weekly program to allow for reading, research or other independent pursuits is desirable.

VIII. Accreditation of Medical Schools

The American Medical Association through its Council on Medical Education and Hospitals and the Association of American Medical Colleges through its Executive Council serve as the recognized accrediting agencies for medical schools and for schools of the basic medical sciences. Though retaining their individual identities, both groups work very closely in this activity through the Liaison Committee on Medical Education. To be accredited, a school must be considered approved by the Council on Medical Education and Hospitals and by the Association of American Medical Colleges. Accreditation is granted on the observance of a sound educational program in a survey visit conducted jointly by both organizations.

It is the intent that newly developing two-year schools should be surveyed during each of the first two years of active existence, with definitive action taken during the implementation of the second year of the curriculum.

Existing medical schools are surveyed at regular intervals. Every attempt is made to fulfill requests for interim surveys as a consultant service to the medical schools and schools of basic medical sciences.

A school to be surveyed is requested to provide basic information on forms forwarded in advance. After careful study of this material, a joint survey team visits the school. On completion of its visit, the survey team confers with the responsible administrative officials of the school of basic medical sciences and its parent university, indicating to them the nature of the major findings and recommendations. A complete, written report is prepared and considered separately by the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges and then jointly by the Liaison Committee on Medical Education. The action of each group and the complete report is then transmitted to the school dean and the university president.

Application for and further information concerning this process can be obtained from the Secretary Council on Medical Education and Hospitals, American Medical Association, 535 N. Dearborn St., Chicago 10, or the Executive Director, Association of American Medical Colleges, 2530 Ridge Ave., Evanston, Ill.

Appendix B.—Essentials for Residency Training in Urology

Residency instruction in urology should be systematic and progressive in character to the end that adequate training may be obtained in diagnosis, therapy, cystoscopic examinations, pyelography and operative procedures, all under the supervision of a well qualified urologist. Such a progressive type of instruction predicates continuity of supervision by the Head or Chief of Service for a sufficient number of years, which ideally constitutes a length of service of three to five years or longer, to assure stability in the direction of the educational program. The position of Chief of Service should not be an honorary appointment, but should be held by the urologist best fitted for this responsibility. The urologic staff should be composed of urologists who are highly qualified in both surgical skill and judgment. It should be organized and harmonious, with the designated Head or Chief of Service responsible for the quality of work done in the department. The members of the staff should have a real interest in teaching and the welfare of the residents, and must be willing to give the time and effort required by the educational program. Teaching rounds and departmental conferences are essential for systematic clinical instruction. As preliminary training for residencies and fellowships in urology, the Residency Review Committee recommends one year of internship and one year of training at the graduate level in surgery, medicine, or a related basic science. It is acceptable that any formally integrated service may permit some variation on the one year basic science, general surgery, and internal medicine requirement, provided it is completed prior to the senior year.

The department must provide adequate facilities for surgery and special urologic procedures. Training in surgical technic should be sufficient to enable residents to undertake operative work on their own responsibility, especially toward the end of the residency program.

The clinical material should be sufficient in amount and variety to fulfill the teaching needs of the service. Hospital patients should be supplemented by outpatient material in cystoscopic and general urologic clinics.

Quantitative Requirements

Ordinarily a minimum of 200 inpatients a year is necessary for acceptable residency training in urology.

Applied Basic Science Instruction

Instruction in the applied basic sciences can readily be integrated with the clinical experience. This should be supplemented by conferences in embryology, anatomy, physiology, microbiology, endocrinology, radiology, and biochemistry. Particular emphasis should be placed on the study of pathology and residents must be required to examine both grossly and microscopically all urologic specimens removed during his term of service. Such work should be closely correlated with the clinical experience. See Section I-9 of these "Essentials" for a discussion of applied basic medical science instruction.

The provisions of the section General Requirements (pp. 6 to 17) must also be met for approval.

Residents who plan to seek certification by an American Board should communicate with the secretary of the appropriate board, as listed in Section V, to be certain regarding the full requirements for certification.

COUNCIL ON MEDICAL SERVICE

This report covers the fiscal year June 30, 1957, to July 1, 1958. All activities taking place during the summer and fall of 1958, which seem to warrant the immediate attention of the House of Delegates, will be included in a supplemental report to the House.

The Council on Medical Service and its eight committees held twenty meetings and six regional conferences during the year. Most of the meetings were held in Chicago, as the most convenient place for both physicians and the staff. However, 4 meetings and 5 regional conferences were held elsewhere, either as a convenience to state medical association representatives or to permit Council and committee members to get in closer touch with regional and local opinions and attitudes.

Several times in the past the Council has reviewed the make-up and method of operation of its eight committees and it does not seem necessary to review this again at this time. However, the Council would like officially to express the appreciation to the members of these committees for the time and interest each has devoted to the study of problems under consideration. Over 60 physicians and consultants serve without remuneration and frequently at a personal loss in both dollars and "family" or "leisure" time. And, surprisingly enough, it is a rare occasion when a Council meeting or a committee meeting does not have 100% attendance. In addition, the Council would like to express its appreciation for the time given by the several hundred physicians who attended the regional conferences to discuss specific projects and activities. The Council looks upon its primary objective as that of representing the practicing physician. To accomplish this, those active in the A. M. A. must understand the problems of the practicing physician and the practicing physician must understand the problems of the A. M. A. Both the committee structure and regional conference approach provide what might be termed a "two-way street" for a better understanding by all concerned.

The Council also wishes to point out that its staff serves other committees within the Association. Among those served during the year, either in part or in full by Council staff members are: Commission on Medical Care Plans, Committee on Medical Practices, Task Force on Dependent Medical Care, Committee on Relationships Between Medicine and Allied Health Agencies, Committee on Medical Rating of Physical Impairment, and the Medical Advisory Committee to the Sears-Roebuck Foundation. In this latter task, the staff was instrumental in developing a new book entitled "The Business Side of Medical Practice" designed to help the young physician in establishing his practice. The Council is distributing this book to senior medical students, interns, and residents through the state and county medical societies.

Finally, the Council would like to express its appreciation to the Board of Trustees for approving the appointment of Mr. George W. Cooley as Secretary of the Council on Medical Service to fill the vacancy created by the resignation of Mr. Thomas A. Hendricks. Mr. Hendricks in December, 1957, became Field Director for the American Medical Association. Mr. Cooley had been Mr. Hendricks' assistant and associate for over twelve years and will, we are confident, continue the many projects and activities which Mr. Hendricks so ably began.

On the following pages of this report the House of Delegates members will find a review of some of the activities of the Council and its committees, covering the past year.

Committee Reorganization

The original committees of the Council on Medical Service were created by the House of Delegates in 1948. These Committees are composed of physicians, either especially qualified or having a special interest in the area covered by the committee concerned. They bring to committee work a wide range of opinions and viewpoints, representing different geographical areas, different specialties, and different types of medical practice. One committee has been added since 1948 and the names of several of the committees have been changed. However, the general structure has remained as originally authorized by the House. Recognizing that new interests and new problems have arisen the past few years, bringing about a need for increased emphasis in some areas as well as new activities in others, the Council had, for some time, considered reorganization of this committee structure. With this in mind a major change has been made in reference to insurance and prepayment plans.

Because of the special interest of Dr. Milford O. Rouse and the Texas Delegation in increasing the Association's activities in reference to all forms of insurance and prepayment, the Council held its March, 1958, meeting in Texas to discuss these problems further.

Since any reorganization of Committee structure requires action by the Board of Trustees, the Council reported in full on this matter to the Board of Trustees and made the following recommendations:

1. That the activities of the present Committee on Prepayment Medical and Hospital Service and the Committee on Relations with Lay Sponsored Voluntary Health Plans be combined into a new committee entitled "Committee on Insurance and Prepayment Plans" to handle all problems in reference to:
   - I. Insurance Per Se, Written By
     - A. Private Insurance Companies, and including such coverages as:
       - 1. Medical-Surgical
       - 2. Catastrophic or Major Medical
       - 3. Health and Accident (time loss)
       - 4. Professional Liability
       - 5. Life
     - B. Blue Shield and Blue Cross Plans of the straight indemnity type
   - II. Prepayment Health Care Plans, *including*
     - A. Vendor Sponsored Plans, such as:
       - 1. Medical society (including Blue Shield) plans with "service" features, and
       - 2. Blue Cross plans with "service" features
     - B. Consumer or Lay Sponsored Plans, such as:
       - 1. Health Insurance Plan of Greater New York
       - 2. Cooperatives providing or arranging for medical-hospital care
       - 3. Group Health Association, Washington, D. C.
2. That the present Committee on Medical Care for Industrial Workers, a joint committee of the Council on Medical Service and Council on Industrial Health, be retained to handle all problems in reference to:
   - III. Non-Insurance Medical Care Plans, *including*
     - A. Plans Sponsored by Unions, such as:
       - 1. U. M. W. A. Health and Welfare Program
       - 2. Union Health Centers
     - B. Plans Sponsored by Industry, such as:
       - 1. Medical Care Plans in Industry
       - 2. Employee Benefit Plans
       - 3. Railroad Hospital Plans
3. That the Council be authorized to employ a recognized authority in the field of insurance as director of the Committee on Insurance and Prepayment Plans who can act as spokesman for the A. M. A. in this field and can plan and direct such research as is necessary to promote the best interests of the public and the profession.

With a recognized authority as director of a Committee on Insurance and Prepayment Plans the Council proposes to divide the work into two phases:

(1) Section A under Category I, Insurance—Per se; and

(2) Section B under Category I and Sections A and B under Category II, Prepayment Health Care Plans, with adequate staff to serve each phase.

In reference to the above recommendations the Council wishes to point out that it has already increased its staff personnel to step up activities in these areas as well as in the areas of Aging and Medical and Related Facilities. So far, four additional staff members have been added, all of whom are well qualified in handling various aspects of the Council's work.

The Board of Trustees approved the establishment and name of the new Committee and requested a conference with the Council as to the size and membership of the Committee.

The result of this conference was:

1. The establishment of a new Committee on "Insurance and Prepayment Plans" combining the functions of the Committee on Prepayment Medical and Hospital Service and the Committee on Relations with Lay Sponsored Voluntary Health Plans.
2. The Committee to be composed of nine physicians, with one year tenure.
3. Approval of the employment of an individual experienced in the field of insurance to head up the Committee's activities and such additional staff as is needed to carry on the necessary activities in the prepayment field.
4. Approval of the use of technical advisors or consultants from the various insurance and prepayment fields.

During the summer and fall the Council will name the Committee members, the technical advisors, and employ the necessary staff.

Committee on Aging

MEMBERSHIP

This Committee has had two membership changes during the year: Although he will continue as a member of the Committee, Dr. H. B. Mulholland, Charlottesville, Va., for reasons of health, was replaced as Committee Chairman by Dr. Frederick C. Swartz, Lansing, Michigan; Dr. David B. Allman, Atlantic City, N. J., was added. Other members are: Drs. Edward L. Bortz, Philadelphia; Henry A. Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, North Carolina; Theodore G. Klumpp, New York City; Cecil Wittson, Omaha; and J. D. McCarthy, Omaha, ex-officio. Staff members are Mr. George W. Cooley, Secretary, Mr. John Guy Miller, Research Associate, Mr. Herbert B. Norton, Research Assistant, and Mr. Arthur Broadwin, Research Assistant.

A. M. A. HEALTH PROGRAM FOR OLDER CITIZENS

Perhaps the most realistic and far reaching achievement of this Committee during the current year lies in the development of "a positive program." As the multiple problems in the area of the aging became more distinct, there developed a realization that A. M. A. must reaffirm its leadership in this important area, and that such leadership, in order to be most effective, must be translated into action by the constituent and component medical societies.

While the positive program is still undergoing revision prior to its general publication, it calls for medical society action at national, state and local levels in the interest of the following objectives:

1. Stimulation of a realistic attitude toward aging by all people.
2. Extension of effective methods of financing health care for the aged.
3. Expansion of skilled personnel training programs and improvement of medical and related facilities for older people.
4. Promotion of health maintenance programs and wider use of restorative and rehabilitative services.
5. Amplification of medical and socio-economic research, in problems of aging.
6. Cooperation in community programs for senior citizens.

The constituent and component medical societies will be presented with the substance of this program at the National Conference in September. (cf: A. M. A. Planning Conference on Medical Society Action in the Field of Aging—this report)

EXHIBIT

An exhibit is being planned which will be based on the "6 point program" and it is scheduled to be ready for the National Conference in September. Other commitments to show it include (1) Annual Meeting of the Gerontological

Society in Philadelphia, November 6-8, 1958 and (2) A. M. A. Clinical Session, Minneapolis, December 2-5, 1958. At a later date the exhibit may be made available on a loan basis to the state and county societies.

REGIONAL MEETINGS

It was pointed out in the 1957 annual report that a series of regional meetings was inaugurated at Seattle during the A. M. A. Clinical Session in November, 1956. This was followed by similar meetings at Dallas, Texas in April, 1957; Philadelphia in December, 1957; Birmingham, Alabama in March, 1958 and Omaha, Nebraska in May, 1958.

Each regional meeting was attended by physician representatives from the medical societies (both state and local) of from 8 to 12 of the contiguous states in each area. The programs were specifically geared to audience participation and discussion. The Committee members were informed of the problems at the state and county levels and of what state and local committees on aging were seeking, in the form of guidance, from the A. M. A. Committee. Further, those attending the meetings were given specific information relating to the various aspects of the problem and a review of what is being done, what can be done and suggestions as to how to do it. Such data have been summarized in printed form and are available on request.

A. M. A. PLANNING CONFERENCE ON MEDICAL SOCIETY ACTION IN THE FIELD OF AGING

The Committee was sufficiently encouraged by the interest manifested at the regional meetings to feel justified in holding a national conference for the benefit of all the state and local medical organizations. This conference at the Drake Hotel, Chicago, September 13 and 14 will be discussed more fully in the supplementary report of the Council.

GUIDES FOR MEDICAL SOCIETY COMMITTEES ON AGING

One of the principle objectives of the regional meetings was to stimulate the creation of committees on aging by all state and county medical societies; further, the A. M. A. House of Delegates, on the recommendation of this Committee, at the Clinical Session in December, 1957, "urged every state medical association to create a committee on aging or to assign this problem to an existing committee." In view of this and also in response to many requests for guidance from both state and county medical societies, this Committee has published "Suggested Guides For Medical Society Committees on Aging."

JOINT COUNCIL TO IMPROVE THE HEALTH CARE OF THE AGED

This Council, which was created during the current year, is composed of the American Medical Association, the American Dental Association, American Hospital Association, and the American Nursing Home Association. The objectives of the Council are listed as follows: (1) to identify and analyze the health needs of the aging; (2) to appraise available health resources for the aging; and (3) to develop programs to foster the best health care for the aging regardless of their economic status. The Joint Council is expected to serve as a coordinating mechanism for discussion and planning purposes.

This Committee has endorsed the Joint Council in principle and recommended that, wherever feasible, similar units be established at the state level.

Liaison at the staff level has been established and will be maintained between the Joint Council and the Committee on Aging.

LIAISON WITH OTHER GROUPS

On September 15, 1957, the Committee met in Washington with representatives of the American Psychological Association and on September 16 with representatives of those Federal Agencies interested in aging.

As indicated in the annual report of 1957, the meeting with the American Psychological Association was arranged because of this Committee's interest in "*Retirement (Aptitude Tests—Medical Yardsticks).*" Further, "the Committee believes that retirement should not be based on chronological age. . . ." The conferees examined the present status of psychological technics and the extensive research that is being conducted in this area.

COMMITTEES ON AGING—STATE MEDICAL ASSOCIATIONS

This Committee has consistently reminded each state association, without a committee, of the desirability of creating one. In January, 1956, in response to a questionnaire, only 16 of the 37 reporting state associations had specific committees on aging or had assigned this problem to an existing committee. At this time 33 state medical associations report a committee on aging or that the problem has been assigned to an existing committee. Further, this Committee is informed that 10 additional state associations will have created such committees by the early fall bringing the total to 43.

Under the title "Liaison with Federal Government and National Agencies" in the 1957 annual report, it was stated that "A Federal Council on Aging has been created representing 12 departments and agencies." This has now been increased to 13 departments and it was with representatives of 7 of these agencies that this Committee met in Washington, D. C., on September 16, 1957. The departments represented were: (1) Center for Aging Research, National Institutes of Health; (2) Small Business Administration; (3) Veterans Administration; (4) Bureau of Employment Security, Department of Labor; (5) Housing and Home Finance Agency; (6) Employee Relations and Planning, Civil Service Commission; and (7) Public Health Service.

Transcripts of the proceedings of this meeting as well as of the meeting with the American Psychological Society have been published (cf: "Publications"—this report).

This Committee has followed closely the activities of other national groups interested in Aging. It has maintained liaison with and attended national and regional meetings of: (1) U. S. Public Health Service; (2) Division on Gerontology, University of Michigan; (3) Council of State Governments; and (4) The National Committee on Aging of the National Social Welfare Assembly.

U. S. Public Health Service.—The U. S. Public Health Service has conducted a series of 7 regional conferences. These seminars were primarily to acquaint the personnel of state health departments with preliminary plans and to prepare them for active participation in more detailed planning which is scheduled to follow. This Committee cooperated by communicating with the state medical associations in each region prior to the conference, and urged them to be represented. According to reports, such representation fell short of what should be expected.

Staff attended the regional seminar in Chicago on June 20, 1957. The underlying theme of all of the sessions was that the problems of the aging and aged are community responsibilities and cannot be delegated to any one agency or segment of society, but must be shared by all in a spirit of aggressive cooperation.

Division of Gerontology, University of Michigan.—Staff attended the 10th Annual Conference in Ann Arbor on June 24-26, 1957. The theme of this conference was "Retirement and Leisure Time." The contributions on the part of the speakers were essentially academic in substance. The Conference, however, pin-pointed three important factors.

(1) The complexity of the problem.
(2) The paucity of applicable and practical solutions.
(3) The wide and general recognition of the problem, and a sincere desire to do something about it on the part of trained personnel who should have the "know how" with regard to working out some solutions.

Council of State Governments.—Staff attended regional meetings at Cleveland, Ohio on July 22-24, 1957, and at Atlanta, Georgia, on February 28-March 1, 1958.

About three-fourths of all of the state governments now have committees concerned with the problems of the aging, but many are of an interim or *ad hoc* tenure. Many states have study commissions and inter-departmental coordinating agencies. As evidenced by the resolutions passed at these regional conferences urging the governors of the several states to take definite action in this area, there is aggressive effort being made to strengthen the structures and accelerate the activities of these committees.

The National Committee on the Aging of the National Social Welfare Assembly.—This Committee of the National Social Welfare Assembly is broadening its scope both in the areas of its activities and in the area of research: Its last meeting, which was attended by staff, was held in Washington, D. C. on March 13-14, 1958. The substance of the conference was in terms of the political and social aspects of the problems incident to aging.

NURSING HOMES

The nursing home is the indicated facility for those elderly patients whose infirmities do not qualify for care in a general acute disease hospital and where home care is not available or feasible.

This presents a challenging problem area, and this Committee, in cooperation with the Committee on Indigent Care and the Committee on Medical and Related Facilities, has established an active and continuing liaison with the American Nursing Home Association. (This Committee recommended, and the Council approved, that state committees on aging may serve as the group to have liaison with state nursing home groups).

Committee and staff members attended a conference on "Long Term Care" sponsored by the American Hospital Association and the Public Health Service and during the past year, the U. S. Department of Health, Education and Welfare sponsored by a "National Conference on Nursing Homes and Homes for the Aged."

Other Joint Committee activities regarding Nursing Homes are covered elsewhere in the Council report.

PUBLICATIONS

(1) A series of 11 articles on various aspects of the problems in the field of aging was published in the J. A. M. A.

(2) "Health Aspects of Aging"—a brochure including the above 11 articles and in addition an article by H. B. Mulholland, M.D., on "Aging and Chronic Illness."

(3) "Suggested Guides for Medical Society Committees on Aging". These guides discussed previously in this report cover the following areas: (1) Purpose; (2) Membership and Format; (3) Tenure; (4) Meetings and (5) Activities.

(4) "Proceedings of the Regional Meetings of the Committee on Aging" Philadelphia—March 19-20, 1956
Seattle, Washington—November 27, 1956
Dallas, Texas—April 27-28, 1957

(5) "Proceedings of the Committee on Aging"
I. With American Psychological Association
September 16, 1957, Washington, D. C.
II. With Federal Agencies Interested in Aging
September 16, 1957, Washington, D. C.
III. Regional Meeting
December 2, 1957, Philadelphia, Pa.

(6) "Proceedings of the Regional Meetings of the Committee on Aging"
Birmingham, Alabama—March 29-30, 1958
Omaha, Nebraska—May 24-25, 1958

The proceedings of regional meetings offer a cross section in discussion form of what some physicians and educators are thinking in the area of the problems of the aging and aged.

Further, in preparation, is a series of articles on the activities, in the field of aging, of the federal and state governments and other national lay organizations; it is planned to publish the series in the J. A. M. A.

CHRONIC ILLNESS NEWSLETTER

The Council has continued bi-monthly publication of the Chronic Illness Newsletter during the past year. In August, the mailing list was revised and brought up to date by mailing return postal cards to the 12,000 individuals and organizations who were receiving the Newsletter. Approximately 6,500 cards were returned, and this group constitutes the present mailing list, representing a cross-section of the medical and allied health fields. Emphasis in the Newsletter continues to be placed on specific local community programs and approaches to the different problems in the area of long-term illness, and from all indications the publication is well received and used. All material continues to be supervised by the Editorial Advisory Committee, composed of Dr. Henry B. Mulholland, Dr. Dean W. Roberts, and Mrs. Lucille Smith, former members of the National Commission on Chronic Illness, and Dr. Edward L. Bortz, a member of the Council's Committee on Aging.

Committee on Federal Medical Services

The membership of the Committee has undergone two changes during the past year. At the December 1957 session in Philadelphia, Dr. Henry S. Blake of Topeka, Kansas was added to the membership, and at the June 1958 session in San Francisco, Dr. Russell B. Roth of Erie, Pennsylvania was elected Chairman of the Committee, to replace Dr. Louis M. Orr of Orlando, Florida, now president-elect of the American Medical Association.

Other members are Drs. Donald C. Conzett, Dubuque, Iowa; J. Lafe Ludwig, Los Angeles; Richard L. Meiling, Columbus, Ohio; Vincent W. Archer, Charlottesville, Va.; Oscar B. Hunter, Washington, D. C.; and J. D. McCarthy, Omaha, ex-officio. Staff members are: Dr. William J. Kennard, Washington, D. C., and Mr. C. Joseph Stetler, Chicago, consultants; Mr. George W. Cooley, Secretary, and Mr. James H. Fleming, Research Assistant.

The Committee on Federal Medical Services met twice during the period from July, 1957 to June 30, 1958. Meetings were held at Philadelphia on December 2, 1957, and at Chicago, on June 7, 1958. Dr. Orr, then Chairman of the Committee, also held a staff conference at Chicago on February 6, 1958.

A. M. A. POLICY ON VETERANS' MEDICAL CARE

The policy adopted by the House of Delegates in November, 1956 in regard to veterans' medical care stated that Veterans' Administration facilities should be used only for the care of service-connected diseases and disabilities, and that the care of non-service-connected conditions should be the responsibility of the individual, or, if he is medically indigent, of his community or state. It further stated that, until existing law is changed, priority for any non-service-connected care provided should go to those suffering from illnesses or disabilities which are economically catastrophic.

At the June, 1958 session of the House of Delegates this policy was further amplified by the adoption of a resolution that the House should "urge congressional action to restrict hospitalization of veterans at VA hospitals to those with service-connected disabilities." The resolution further stated that the American Medical Association should suggest to the Dean's committees "that they restrict their activities to Veterans Administration hospitals admitting only patients with service-connected disabilities."

MEDICAL SOCIETY RESPONSIBILITY

In its 1957 report, the Committee recommended that further emphasis be placed on the June, 1957 reference committee recommendation that "it will be to the best interests of the public in general, and veterans in particular, if medical societies, county and state as well as national, develop committees to assist in guaranteeing VA hospital admission to service-connected cases." It also called attention, at that time, to the House's recommendation that the medical profession should help assure "that veterans whose illness constitutes economic disaster will not be displaced by those suffering short-term remediable ills which, at the worst, constitute financial inconvenience." At the Philadelphia meeting (December, 1957), the reference committee also emphasized this request and urged state medical associations to report to the Council on Medical Service any activities in this regard. In the Committee's opinion, the June, 1958 resolution on veterans' care does not nullify this recommendation as to procedure under existing laws.

The Committee considers it essential, if the medical profession's recommendations in regard to veterans' medical care are to be considered seriously by the general public and the Congress, that concrete evidence be provided of the profession's very real concern for the care of the veteran with service-connected diseases and disabilities and for those who are truly unable to pay for care. It also feels that the activities recommended at the Philadelphia session would very clearly demonstrate that the policy on veterans' medical care is part of a positive program for the health of the entire nation. However, it regrets to report that, during the six-month period, January to June, 1958, after this recommendation was adopted by the House, no activity of this sort has been reported to the Council on Medical Service.

The Committee therefore wishes to repeat its recommendation that state and county medical associations establish organized programs to assure observance of these priorities, and to urge most strongly that the Council on Medical Service be kept informed of all such activities, so that they may be reported at the national level.

HOMETOWN MEDICAL CARE

The latest annual report of the Veterans' Administration shows 584,114 outpatient visits to fee-basis physicians during fiscal year 1957, better than one-fourth of all out-patient visits. In terms of visits for treatment, rather than for examinations, fee-basis physicians provided over one-third of the out-patient care. The total number of out-patient visits to fee-basis physicians decreased from fiscal year 1956 to fiscal year 1957 by about 3.4 per cent. However, since the visits to Veterans' Administration out-patient facilities decreased by a like amount (3.6%), it appears that the decline is probably due to a gradual falling-off in the service-connected case load, rather than to a decrease in emphasis by the Veterans' Administration on the Hometown Medical Care program.

The Veterans' Administration has, during the past year, introduced several changes in the Hometown Care program, apparently designed primarily to reduce the amount of administrative paper-work required. The two major changes introduced involve extended authorizations to private physicians for treatment of long-term cases and the authorization of informal agreements, negotiated between state medical associations and VA regional office Chief Medical Directors, to replace direct contracts. The latter change, effective July 1, 1958, means that only those states with intermediary contracts, in which a third party administers the program, will have to negotiate contracts with the VA central office.

CONFERENCE ON VETERANS' AFFAIRS

At the Philadelphia session, the House endorsed the Committee's proposed national conference on veterans' affairs, to be held in 1958. At this conference, it is planned that time will be allowed for a thorough discussion of the Hometown Medical Care program and the problems involved. The Committee also proposes, at this conference, to discuss other aspects of the problem of veterans' medical care and methods of further implementing the medical profession's policy, both at the national and the local level.

Decision as to date and place of this conference is not yet final; it is expected that further information will be presented in a supplementary report to the House.

MEDICAL CARE FOR CIVIL SERVICE EMPLOYEES

At the December, 1957, session, the report of the Reference Committee on Insurance and Medical Service included the following comment on this Committee's report: "it is interesting to note that the alleged abuses in Bexar County (Texas) were corrected after the recommendations were adopted, but in recent months a change of post command resulted in the reinstitution of former practices of medical care for Civil Service employees. Appropriate steps are being taken to remedy the situation."

In pursuance of this objective, the matter was brought to the attention of Major General Dan C. Ogle, Surgeon General of the Air Force. In December, 1957, General Ogle notified the Association that "definite steps are being taken to re-evaluate and realign the occupational program at Kelly (Air Force Base) so that it will coincide with the latest policies of the American Medical Association. . . . It is expected that the new program will receive the approval of all interested parties . . ."

On December 18, 1957, Air Force representatives met with a group of Bexar County Medical Society members and presented a comprehensive industrial medicine program based on their interpretations of the A. M. A. policies. At the request of the Air Force representatives, society members examined this program and suggested changes in wording to clarify its scope and purpose. The introductory remarks to the program stated that the "Geriatric Program," upon which Bexar County Medical Society complaints were based, would be discontinued.

On February 11, 1958, the Executive Board of the Bexar County Medical Society voted to approve the principles outlined in the "Revision of the Physical Examination Program for Civilian Employees of Kelly Air Force Base." The Geriatrics Program has been discontinued and there have been no further reports of abuses of this program.

WORKMEN'S COMPENSATION AND INSURANCE CASES IN VA

There has been no further change in policy by the Veterans' Administration since the inauguration of the new procedure (reported in the 1957 Annual Report) whereby veterans whose care is covered by workmen's compensation will be so informed, and urged to review their statements of inability to pay and to request transfer to non-VA hospitals.

This procedure was announced to VA facilities in a directive dated May 29, 1957; it was announced to the public in a press release, dated June 26, 1957, which also noted that files sent to the VA central office for review may be referred to the Department of Justice, which may prosecute.

This directive has, therefore, been in effect over a year. No reports have yet been published by the Veterans' Administration, to the Committee's knowledge, evaluating the effectiveness of this directive. It has been noted that there was probably some decrease in compensation and insurance payments for VA patients in fiscal year 1957 from fiscal year 1956, since the 1956 report stated the VA received reimbursements of $4.8 million from non-Federal sources, the major portion consisting of "proceeds from hospitalization insurance contracts", while the 1957 report states merely "The VA medical program was credited with $7 million in appropriation reimbursements, approximately one-half of which were derived from Federal sources."

The Committee has requested from the Veterans Administration information as to the effect of this directive on its workmen's compensation case load during the 1958 fiscal year, and will report to the Association when this information is received.

The Committee noted in its 1957 report that it felt that private health insurance coverage in relation to VA medical care was a more difficult problem and should be held in abeyance while workmen's compensation was being discussed. As this position was approved by the reference committee and the House of Delegates, the Committee is awaiting data from the Veterans' Administration concerning the results of its workmen's compensation directive before making further recommendations for action on the question of insurance coverage.

LEGISLATIVE DEVELOPMENTS

Perhaps the most important new development in the veterans' medical care problem is the publication of House Committee Print No. 222, dated June 26, 1958, for the use of the House Committee on Veterans' Affairs.

In answer to a letter from Representative Olin E. Teague, Chairman of the Committee, requesting information as to the Administration's policy on the number of beds which would be maintained in the Veterans' Administration hospital system, the President released the text of a report based on joint studies by the Veterans' Administration, the Public Health Service, and the American Hospital Association. Included in this study is a report on the total number of veterans hospitalized as of June, 1957, by eligibility status, type of disability or disease, age, and auspices (VA or non-VA patient), as well as a projection of the estimated veteran patient load, service-connected and non-service-connected, by type of disability, through 1986.

Because these data so clearly illustrate the need for reappraisal of the VA hospital program, the Committee wishes to repeat some of them in this report. The combined studies indicated that a total of 187,800 male veterans were hospitalized in all public and private hospitals of the United States and Puerto Rico as of June, 1957 and that 110,200 of these were hospitalized under VA auspices. Nearly 3 out of every 5 veterans who needed hospital care received it from the VA. Over two-thirds of all tuberculous and psychiatric veteran patients received care from the VA, and close to half of the general medical, surgical, and neurological patients.

Of the 187,800 veteran patients, only 39,000 were being treated for service-connected conditions; the remaining 148,800 were all non-service-connected. About 48% of all non-service-connected conditions were treated in VA hospitals—60% of the NSC tuberculous load, 48.5% of the psychiatric load, and 45% of the general medical, surgical, and neurological load. About half the veteran patients, therefore, had stated they were unable to pay for care.

Projections from this study indicate that, by 1986, the service-connected load will decrease to 23,600, of which 22,000 will be psychiatric cases, while the total non-service-connected veteran patient load will increase from 148,800 to 304,500. In 1986, it is estimated, there will be 1,300 service-connected GMS&N cases, and 189,600 non-service-connected in this category.

The Committee believes that these figures bear out the medical profession's belief that there will be increasing pressure for more VA hospital beds in the future and that, even without any increase in beds, the care of service-connected cases will be a continually declining part of the Veterans' Administration's medical program unless its admission policies are changed and the program curtailed.

The House Committee on Veterans Affairs scheduled hearings on this subject for July, 1958, at which Dr. Russell B. Roth, chairman of the Committee on Federal Medical Services, testified for the American Medical Association.

COMMITTEE PUBLICATIONS

The Committee has published a brochure, entitled "Veterans and Non-Veterans: Two Classes of Citizens?" comprising a letter disagreeing with the medical profession's policy and a reply by Dr. Louis M. Orr, then chairman of the Committee, which first appeared in THE JOURNAL of the A. M. A., June 1, 1957, pages 572-579; copies have been distributed to all state veterans' affairs committees and to others concerned with the problems of veterans' medical care.

During the period from July, 1957 to June, 1958, the Committee published six issues of the Federal Medical Services Newsletter. In addition to articles on various aspects of veterans' medical care, Newsletter topics have included United States participation in international health programs, quality of care in Public Health Service hospitals, Indian health, health insurance for federal employees and in the Panama Canal Zone, and public assistance medical care. Publication in the May and June, 1958 Newsletters of a special report on the cost per case of care in VA and non-federal hospitals has already brought in a number of requests for copies from individuals and organizations not on the regular mailing list, which now includes some 4,900 names.

The Committee is preparing for publication an addendum to its March, 1957, factbook, "A. M. A. Policy on Medical Care of Veterans", to bring the statistical data in this brochure up to date, according to latest information available on VA operations. The Committee is also planning on publishing several brief leaflets, each concentrating on one facet of the relationship between veterans' medical care and the health of the nation as a whole.

FUTURE ACTIVITIES

The Committee is continuing to implement its directives from the House of Delegates to inform physicians and, when feasible, the public concerning the medical profession's policy on federal care for veterans and other federal non-military medical programs through its studies and reports in the Federal Medical Services Newsletter and other publications, all of which have been circulated widely inside and outside the medical profession.

These directives will be further implemented by the projected conference on veterans' medical care, at which the Committee expects both to assist the states in their activities through the interchange of opinion and experience among the representatives of the various areas and also to obtain recommendations from the state associations as to ways in which the Committee may intensify its own activities at the national level.

Committee on Indigent Care

There have been no changes in the membership of this committee during the past year. Current members are Drs. John F. Burton, Oklahoma City, Chairman; A. J. Bowles, Seattle; I. Jay Brightman, Albany, New York; E. P. Coleman, Canton, Illinois; Wesley W. Hall, Reno, Nevada; E. A. Ockuly, Toledo, Ohio; Dean W. Roberts, Chicago; and J. D. McCarthy, Omaha, ex officio. Committee consultants are Mr. R. M. Hilliard, Chicago, and Mr. Nelson B. Neff, Reno, Nevada. Staff includes Mr. George W. Cooley, Secretary, and Mr. James H. Fleming and Mr. Nicholas M. Griffin, Research Assistants.

COMMITTEE MEETINGS

The Committee held two meetings in Chicago during the year; on October 20-21, 1957 and on March 15-16, 1958. At each meeting, one day was devoted to a conference with representatives of state medical associations which were having problems in the field of indigent medical care. At the October meeting, representatives were present from eleven state associations and, at the March meeting, from twelve state associations.

Representatives of the Federal Bureau of Public Assistance of the Department of Health, Education, and Welfare were present at both sessions to discuss these problems and to provide information on the current public assistance situation. A representative of the American Public Welfare Association was also present at both conferences, to present the viewpoint of the professional welfare worker.

The Committee feels that these conferences have been most helpful to Committee members, in that they have obtained firsthand information as to the problems which most concern the medical societies in each state in regard to the provision of indigent medical care. State association representatives have also expressed the opinion that the conferences helped them to gain a broader perspective of the over-all problems and policies involved than would be possible without this contact with other state association representatives.

STAFF TRAVEL

Prior to the March, 1958, meeting, Mr. Nelson B. Neff, in his capacity as Committee consultant, conferred with various officers and members of the California Medical Association preparatory to reporting to the Committee on the controversy which arose in reference to the new California indigent care program. In October, 1957, at the request of the State Medical Society of Wisconsin, a member of the Council's Research staff, met at Madison, Wisconsin, with representatives of the state medical association and the state welfare department to discuss the effect of new Social Security amendments on the Wisconsin medical care plan.

On June 9-13, 1958, a member of the staff attended a meeting on Organized Home Care at Roanoke, Virginia, sponsored by the U. S. Public Health Service. The meeting was attended by 23 persons representing a number of national organizations in the health field and fifteen different home care programs throughout the country. The conference had as its objectives the determination of the place of home care programs in the care of the chronically ill, the community resources and attitudes necessary for such programs, guide-lines to help communities implement these programs, and areas where further research is necessary. Dr. I. Jay Brightman, a member of the Committee on Indigent Care, was also present at this conference.

ENDORSEMENT OF VENDOR PAYMENTS

At the Philadelphia session of the House of Delegates (December, 1957), Dr. Lawrence R. Dame, representing the Massachusetts Medical Society, introduced Resolution No. 18, "Endorsement of the Vendor System of Payment." The substance of this resolution was that the House of Delegates should endorse the direct or vendor system of payment to physicians for professional services rendered to public assistance patients. The resolution was referred to the Council on Medical Service, which transmitted it to the Committee on Indigent Care for study and recommendations.

At its March, 1958, conference with state association representatives including Dr. Dame as the Massachusetts representative, the Committee discussed this resolution and the methods of payment now in effect in the various states. It became apparent at this meeting that there are widely divergent viewpoints in the various states as to the use of "vendor payments" to physicians, recommended by the resolution.

As examples of the differing viewpoints expressed, in addition to the Massachusetts position stated in the resolution, the Committee found that the Tennessee physicians opposed any payment to the physician from public funds for care of the indigent but supported vendor payments to hospitals provided that all indigent care was under the responsibility of the state health department. California physicians felt that any vendor payment for physicians' services to the indigent from public funds was socialized medicine. The Missouri association was conducting a referendum of its members to determine whether it should oppose vendor payment entirely, or for physicians only, or take no definite stand until enabling legislation for such a program was introduced in the state legislature.

In the light of these varying opinions, the Committee felt that it should consider the possibility of alternative action which would achieve the same purpose as the proposed resolution.

In December, 1956, the House of Delegates had adopted a set of "Guides for Medical Societies in Developing Plans for Tax-Supported Personal Health Services for the Needy", which stated that "The methods of financing of such health services should be determined by the appropriate unit of government, local or state. Methods and amounts of payment for personal health services should be equitable and determined in conference between the responsible public agency and representatives of the providers."

This principle affirms that it should be the prerogative of the responsible state agency in each state, in consultation with the appropriate professional organizations within that state, rather than of the federal government, to decide what portion of the public assistance funds should be paid directly to providers of medical services and what portion to the assistance recipients themselves. The present Social Security Act effectively limits the exercise of this prerogative.

The Committee and the Council therefore recommended that the House of Delegates reaffirm the principle adopted in December, 1956, the prerogative of the states to determine the allocation and method of payment of these funds, and that it endorse in principle legislation which would return this right to the individual states.

This recommendation was approved by the House of Delegates at its June 1958 session at San Francisco, and the Council has so notified the Committee on Legislation.

1958 RESOLUTIONS

At the San Francisco session (June, 1958), Resolution No. 4, Indigent Care, introduced by the Utah State Medical Association, pointed out the current confusion in the medical care programs for welfare recipients and recommended that the Association bring this situation to the attention of Congress. The resolution further recommended (as revised by the reference committee) "that the American Medical Association request that any funds provided under the Public Assistance provisions of the Social Security Act for medical care of the indigent be administered by a voluntary agency such as Blue Shield on a cost plus basis or by a specific agency established by the medical society of the state in which indigent care is rendered." It was further resolved that this resolution be forwarded to the Committee on Indigent Care. The reference committee report was adopted by the House.

The Committee plans to study the implications of this resolution and will report to the House on the changes it will necessitate in national legislation, state plans, and the "Guides" adopted by the House in December, 1956.

CURRENT LEGISLATION

By June 30, 1958, Congress had not enacted any amendments to the Social Security Act which would significantly affect the provision of medical care to the indigent. A number of bills had been introduced, however, which would change these programs, among them bills which would give the states complete leeway as to the allocation of vendor payment funds and payments to assistance recipients within the limits of federally matched expenditures as well as bills which would establish a new program of Federal participation in general assistance costs. General assistance, at present, is provided solely from state and local funds, for those not eligible for the four Federally aided programs; the new bill would include Federal participation in all assistance to the needy, not merely to the aged, dependent children, the blind, and the disabled.

Representatives of the Federal Bureau of Public Assistance of the Department of Health, Education, and Welfare were present at both sessions to discuss these problems and to provide information on the current public assistance situation. A representative of the American Public Welfare Association was also present at both conferences, to present the viewpoint of the professional welfare worker.

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The Committee plans to study the implications of this resolution and will report to the House on the changes it will necessitate in national legislation, state plans, and the "Guides" adopted by the House in December, 1956.

CURRENT LEGISLATION

By June 30, 1958, Congress had not enacted any amendments to the Social Security Act which would significantly affect the provision of medical care to the indigent. A number of bills had been introduced, however, which would change these programs, among them bills which would give the states complete leeway as to the allocation of vendor payment funds and payments to assistance recipients within the limits of federally matched expenditures as well as bills which would establish a new program of Federal participation in general assistance costs. General assistance, at present, is provided solely from state and local funds, for those not eligible for the four Federally aided programs; the new bill would include Federal participation in all assistance to the needy, not merely to the aged, dependent children, the blind, and the disabled.

If any of these bills should be enacted by Congress during this session and are of sufficient importance in the area of indigent medical care, essential information will be presented to the House of Delegates in a supplementary report.

COST OF "MEDICAL" CARE

The Committee has noted with concern a tendency on the part of the public to consider the medical profession responsible for all the costs of medical services to indigent patients, despite the fact that "medical services", in the context of public and general assistance programs, includes all auxiliary health services and facilities, such as hospitals, nursing homes, drugs, therapy, and, in some states, dental care. It therefore feels that this report should include data released by the Bureau of Public Assistance on vendor payments for medical care during the 1957 calendar year, in a report dated July, 1958.

According to this release, the total expenditures for public and general assistance during the year amounted to about $3.1 billion, of which $2.8 billion was expended for public assistance recipients and about $0.3 billion for general assistance recipients (state and local funds only). Of this amount, $302 million (about 10%) was allocated to vendor payments for medical care. This includes only payments made by the disbursing agency directly to the providers of such care, since no accurate check can be made of payments made to physicians, hospitals, and others by the assistance recipients themselves.

Of the $302 million for vendor payments, $287 million was actually paid out to providers of care and some $15 million remained in pooled funds at the end of the year; $211 million was expended for public assistance recipients and $76 million for general assistance patients.

The states did not report to the Bureau of Public Assistance on the type of service purchased by $62 million of this money—but of the $225 million which was reported by type of service, only $21.7 million went to "practitioners"; $110 million went to hospitals, $44 million to nursing and convalescent homes, $21.3 million for drugs and supplies, and $27 million for other services, including dental and nursing services and prosthesis.

From these figures, it is apparent that physicians' services comprise less than ten per cent of the cost of vendor medical payments. This is generally true in all assistance programs, except aid to dependent children, where physicians' services comprise about a fourth of the cost and nursing home care is minimal.

FUTURE ACTIVITIES

The Committee plans to gear its future activities to the needs of the various states, providing them with necessary information on laws and existing programs, advice, and consultation when requested. It is planning several more meetings during 1958, on the pattern of the past two meetings, at which state association representatives from a given area will be given an opportunity to gather at a central location and compare, and possibly work out their problems together, with the assistance of the Committee members and of representatives of the federal bureau.

The Committee believes that the medical profession should guide the development and operation of the medical aspects of these programs, to assure their remaining within proper bounds. One step which might assist in attaining this goal is the establishment of more adequate liaison between the medical profession and the welfare officials within the states; the Committee is studying ways in which this liaison might be improved.

In its 1957 report, the Committee recommended that the House of Delegates urge state medical associations and county medical societies to take an active part in the planning and operation of indigent medical care programs. The Committee has been informed by a number of state associations of the active part they have taken, not only in planning such programs, but even in stimulating legislatures and government officials to undertake the study of state needs and facilities, preparatory to such programs.

The Committee feels, however, that it should reiterate the need for continued active interest not only at the state, but at the county level, in medical care for both those assistance recipients included in the federally-aided programs and for those provided for from local funds only. The Committee feels that there will be a continually increasing interest in medical services in welfare programs; this interest is already evident at the national level, and is growing in the states and counties. As the Committee stated in its last report, "it behooves medicine to work with welfare agencies to see to it that proper and adequate programs are developed."

The Committee wishes to point out, in addition, that this recommendation does not apply only to those areas where the medical profession receives payment from public funds for its care of the indigent. Even when physicians' services are provided through the charity of the individual physician in his office or while he is on staff service at the local hospital, the medical society should still maintain an active interest in the goals, the methods, and the operations of the over-all medical care program for the good of the patient and to assure the proper control of this total welfare service.

COMMITTEE PUBLICATIONS

Public Assistance.—The Committee's 1957 annual report noted the publication of "Medical Care for the Indigent in 1957", a series of 52 questions and answers on public assistance medical care, with particular reference to the effect of the 1956 amendments to the public assistance titles of the Social Security Act. This Committee brochure, which gives history and background on public assistance programs as well as recent devcopments, has been widely distributed both to medical societies and to other individuals and organizations interested in welfare programs.

On October 21, 1957, the Committee published its "Supplementary Report No. 1: Medical Care for the Indigent in 1957." The material in this report brought the earlier study up to date in the light of Public Law 85-110, passed in July, 1957, which further amended the legislation governing federal participation in state indigent medical care programs.

The 1956 and 1957 amendments raised a number of problems for the various states; a certain amount of confusion was caused by the Bureau of Public Assistance's prohibition of "split payments" for medical services. This term applies to a payment method in which part of the cost of a given service was paid directly to the provider of such services and the remainder of the cost was to be paid by the individual assistance recipient.

The Committee therefore published, in the May 17, 1958, issue of The Journal of the A. M. A., a "Supplementary Report No. 2: Medical Care for the Indigent in 1957." This report was concerned primarily with difficulties which had arisen in state indigent medical care plans, with particular reference to "split payments" and the reasons for Bureau of Public Assistance policy.

The federal agency has been given an opportunity to examine and make recommendations in regard to each of these reports prior to publication, in order that the final version may be as clear and as accurate as possible.

The first report and the two supplementary reports are available in pamphlet form from the Council on Medical Service. Copies have been distributed to state medical associations, and many requests have been filled from organizations outside the medical profession.

Organized Home Care Study.—In the early part of 1957, the Committee published a report on its study of "organized 'Home Care' Programs in the United States". This report has appeared both in brochure form and The Journal of the A. M. A.; a summary of the study was also published in the August, 1957, issue of the Chronic Illness Newsletter.

The study reported on 31 different programs through which patients who do not require the full range of hospital services are provided with individualized medical, nursing, social, and rehabilitation services in their own homes, coordinated through a central agency. Approximately 1,500 copies of this report have been distributed. Mailings were made to state and territorial medical associations and to local medical societies in the areas where home care programs are operating. The majority of the copies, however, has been mailed on an individual request basis. The study has been used as source material at several conferences on the subject.

Since this study was published, material has been gathered on additional programs recently established. The report is at present being revised to include these new programs.

Central Information and Referral Services.—For several years the Committee has been gathering data on central information and referral services for the chronically ill. These, as the name implies, are agencies intended to assemble, study, and make available information on existing community facilities and resources for the chronically ill, with the additional possibility of determining unmet needs, developing coordinated community programs, and assisting individual organizations in planning facilities and programs for the chronically ill. The Committee is at present aware of five such services, operating in Chicago, Milwaukee, Cleveland, San Francisco, and Essex County, New Jersey. A report on these centers, covering their history, administration, operation, services provided, and other pertinent data is being compiled. The Committee expects to publish this report in the fall of 1958.

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The purpose of this meeting was to review and analyze some of the current efforts in the study of perinatal mortality and morbidity; to discuss problems encountered in these efforts; to explore ways and means for improving these efforts; to work toward more uniformity in terminology and classification; and to help establish principles on which sound medical policies can be based for the promotion of programs designed to reduce perinatal mortality and morbidity. The meeting was mutually beneficial—the participants expressing appreciation for the knowledge gained in sharing experiences with the group, and in turn the Committee gained information and the consensus of the group useful for its proposed compilation of recommendations for a flexible basic program to be used by state, city-county, or hospital committees in the study of perinatal mortality and morbidity.

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At the conclusion of this second regional meeting, the Committee decided that before sponsoring further regional conferences, it would be more appropriate to meet in joint session with representatives of interested national organizations and agencies in order that the proposed guide might be developed as quickly as possible. The Committee, therefore, scheduled this joint conference for July 26-27, 1958.

PERINATAL STUDY PROJECT

The field work reported in last year's annual report continued from June into July with visits to Seattle, Washington; Portland and Eugene, Oregon; and several points in Montana (state-wide program). This work continued with later visits to review the programs in Delaware; Connecticut; Baltimore, Maryland; and Columbus, Ohio. A special conference to consider these problems was attended by staff in New York City in October. This conference was sponsored by the New York Academy of Medicine, the Departments of Health and Hospitals of the city of New York, and other interested local groups. Information and consensus on several matters obtained from this conference were made available to the Committee for use in its deliberations and are incorporated in the New York article which will appear as one part of a series to be published. (See Articles and Publications.) The experience in Saginaw, Michigan was reviewed during a field study early in 1958, and a pertinent activity in Illinois, and Second Illinois Congress on Maternal and Child Health sponsored by the Illinois Committee on Maternal Welfare, was attended by staff.

ARTICLES AND PUBLICATIONS

The Committee's publications on perinatal mortality and morbidity started with an editorial in THE JOURNAL, June 21, 1958. This editorial referred to and summarized briefly the three articles appearing in the same issue—Challenge of Fetal Loss, Prematurity, and Infant Mortality—Assessing the Local Situation, by Leona Baumgartner, M.D. and Jean Pakter, M.D., New York; Deaths Around Births—The National Score, by Martha M. Eliot, M.D., Washington, D. C.; Challenge of Fetal Loss, Prematurity, and Infant Mortality—a World View, by Louis J. Verhoestraete, M.D., and Ruth R. Puffer, Dr. P.H., Washington, D. C. The editorial also outlined briefly the Committee's work in this field and its program to stimulate interest in and disseminate information on these problems of the perinatal period. The June 28, 1958 issue of THE JOURNAL contained Part 1 of the Committee's series on "Study of Perinatal Mortality and Morbidity Programs in the United States." An editorial introducing this series also appeared in the June 28 JOURNAL. Four more articles are scheduled to be published in July and August and an additional seven articles in this series are in various stages of completion and will appear in THE JOURNAL from time to time this fall and winter.

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FUTURE ACTIVITIES AND PUBLICATIONS

With the above-mentioned study of various well organized perinatal mortality study programs, the regional and joint meetings, and a proposed meeting in October with such agencies as the Children's Bureau, the National Office of Vital Statistics, sections of the National Institutes of Health, and others, it is anticipated that the Committee's work on the proposed "Guide for Study of Perinatal Mortality and Morbidity" will be ready for Council review and approval in time for submission to the House of Delegates in December.

The Committee has given priority to the above work on perinatal mortality and morbidity because the need was urgent. It plans, further, to hold regional meetings in various parts of the country after the "guide" booklet is published. These will be informational and instructive meetings designed to help those medical societies desiring to organize committees and programs of study in this field. Other means, such as the production of a motion picture film for strengthening the Committee's informational and educational effectiveness are in the exploratory stage.

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Other problems such as those relating to immunization, maternity and nursery staphylococcic infections and their prevention, and other current clinical and service areas are under consideration for more concerted study and research.

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UMWA WELFARE AND RETIREMENT FUND

One of the major areas of activity of the Committee during the past year, as in previous years, was that concerned with the relationships between the medical profession and the United Mine Workers of America Welfare and Retirement Fund. In its last Annual Report the Committee registered its disappointment over the rejection by the Executive Medical Officer of the Fund of the "Suggested Guides to Relationships Between State and County Medical Societies and the United Mine Workers of America Welfare and Retirement Fund", which had been adopted by the House of Delegates at the 1957 Annual session. This refusal to accept the Guides led to discussions among several state and numerous county medical societies as to how to deal further with the Fund. Various actions were undertaken in the way of letters, meetings, resolutions, and conferences with Area Medical Administrators—with individual societies attempting to meet their particular problems in a manner each considered most advisable and expedient.

There was evident a lack of general agreement among physicians as to how to react to the Fund's rejection of the Guides. The adoption of the Guides by the House of Delegates had implied to most physicians a recognition by the states of their responsibilities to render good medical care to beneficiaries of the Fund and to adhere to the appeal mechanism outlined in these Guides. The refusal of the Executive Medical Officer of the Fund was based primarily on his rejection of the statement in the Guides that "Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers." The Executive Medical Officer of the Fund maintained further that the profession was unable to discipline its own members and that such a statement would have no effect on the attitude of medical societies. The situation had therefore evolved into one in which some physicians were continuing to serve beneficiaries of the Fund and are reimbursed directly by the Fund; other physicians were continuing to serve beneficiaries of the Fund and billing the patient but are not being reimbursed by the Fund; and still other physicians formerly rendering service are apparently not caring for Fund patients at all.

On September 10, 1957 the Executive Medical Officer of the Fund sent a communication to his Area Medical Administrators further restricting the number of physicians and hospitals to serve miners and their families. The contents of this memorandum and the effect of its application started a chain reaction which is still underway. Beginning October 1, Area Medical Administrators started notifying some of the 6,800 physicians, already approved by the Fund to render medical and surgical services to beneficiaries, that their services would be terminated on or after October 15, 1957. The basis for the termination of these services was the following excerpt contained in the memorandum of the Executive Medical Officer:

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At the 1957 Clinical Session, the House of Delegates adopted Resolution No. 20, submitted by Colorado and amended to read as follows:

Resolution No. 20—Relative to UMWA Welfare and Retirement Fund

Whereas, The United Mine Workers of America Welfare and Retirement Fund has disregarded the "Guides to Relationships Between State and County Medical Societies and the UMWA Welfare and Retirement Fund" which were adopted by this House of Delegates in New York in June, 1957; and

Whereas, The Medical Director of that Fund has publicly disavowed these adopted principles and has publicly stated that his organization will not observe them; and

Whereas, The Fund has, throughout the United States, arbitrarily further abrogated the right of the Fund's beneficiaries to a free choice of physicians and hospitals effective October 15, 1957; and

Whereas, These activities of the Fund appear to be a part of a broad general plan to reduce the practice of medicine to a state of servility, against the public interest; and

Whereas, All systems of medical care which deny patients their inalienable right to free choice of physician and hospital result in deterioration in the quality of medical care; therefore be it

Resolved, That this House of Delegates condemns the current attitude and method of operation of the U.M.W.A. Welfare and Retirement Fund as tending to lower the quality and availability of medical and hospital care to its beneficiaries; and be it further

Resolved, That a broad educational program be instituted at once by the American Medical Association to inform the general public, including the beneficiaries of the Fund, concerning the benefits to be derived from preservation of the American right to freedom of choice of physicians and hospitals as well as observance of the "Guides to Relationships Between State and County Medical Societies and the UMWA Welfare and Retirement Fund" adopted by this House last June.

At the same session the House of Delegates adopted Resolution No. 24, submitted by Pennsylvania, reading as follows:

Resolution No. 24—Conference with Third Parties

Whereas, There is an ever increasing number of third parties assuming the financial obligation of providing medical and surgical care for their respective beneficiaries; and

WHEREAS, This procedure has, in some instances, disturbed the normal physician-patient relationship and created other problems between the medical profession and third parties; and

WHEREAS, Several third parties have indicated their willingness to solve mutual problems through discussion and conference; therefore be it

Resolved, That the House of Delegates of the American Medical Association instruct the appropriate committee or council to engage in conferences with third parties to develop general principles and policies which may be applied to the relationship between third parties and members of the medical profession.

In an attempt to implement the intent of Resolution No. 20, the staffs of the Council on Medical Service and the Department of Public Relations prepared various materials and suggestions for approaches to comply with the action of the House. On March 10 a meeting was held by the staff with representatives from six states involved in the UMWA controversy in order to discuss the proposed educational campaign and to seek advice from the participants in the meeting with regard to the type of program and the nature of materials which they felt were necessary to be prepared. The meeting with the representatives from the states revealed not only a difference of opinion as to how to proceed, but pointed first to the need for an educational program among physicians themselves in order to acquaint them with the reasons for, and methods of, operation of all third-party programs, including that of the UMWA. It was the consensus at the meeting that the individual states would be the final judges of what material, and how much of the material, would be used, depending upon local factors and situations. Firm beliefs were also expressed to the effect that physicians themselves were divided in their thinking about an approach to the third-party problem, including UMWA. Opinions were also expressed to the effect that the American Medical Association lacked a clear-cut definition and policy with regard to "free choice of physician," and that a uniform approach to all third parties rather than to UMWA alone was necessary.

When the Committee met on March 22 and 23 to consider its course of action with regard to Resolution 20, as well as Resolution 24, it had before it numerous documents, reports, speeches, and articles by members of the medical profession as well as a summary of the meeting previously referred to. The Committee evolved the basis for the draft of a statement, which it later approved, and which was ultimately amended and approved by the Councils on Medical Service and Industrial Health and submitted to the Board of Trustees. This statement read as follows:

Resolution No. 20 was submitted to the Council on Medical Service and Council on Industrial Health with the suggestion that they ". . . meet to discuss and formulate a program to implement the action of the House and submit recommendations in this regard to the General Manager." Resolution No. 24 was submitted to the Council on Medical Service for its attention.

Since the Committee on Medical Care for Industrial Workers, a joint committee of the two Councils, normally reviews such matters, both resolutions were referred to that Committee for its consideration and recommendations. That Committee met on March 22-23 to consider both resolutions and made its report to both Councils. The report, as amended and approved by both Councils, is herewith submitted to the Board of Trustees.

The Committee on Medical Care for Industrial Workers has discussed at length Resolution No. 20, relative to the UMWA Welfare and Retirement Fund, introduced by the Colorado State Medical Society and adopted as amended by the House of Delegates in December, 1957. (Reproduced above.)

The Committee is in agreement that medicine's side of this controversy should be presented to the medical profession and subsequently to the public. It feels, however, that consideration should first be given to three aspects of the problem before such a campaign, if embarked upon, can be conducted successfully.

The first aspect concerns third parties in general. In December, 1957, the Pennsylvania delegation introduced Resolution No. 24 adopted by the House. (Reproduced above.)

It is the Committee's opinion that any campaign such as envisioned in the Colorado Resolution No. 20 should take into consideration all third parties as well as the one suggested in Resolution No. 24. The extent of the success of any broad public educational effort is contingent upon the broadest foundation of professional understanding of existing relationships and methods of operations of various types of plans. It is evident that all physicians are not aware of the various aspects of this problem. The Committee therefore considers that it may first be necessary to engage in a variety of efforts to acquaint all physicians, and for the medical profession to become accurately informed, before an educational program directed to the public is formulated.

It is the Committee's further belief that in the consideration of both resolutions the Rights and Responsibilities of patients, physicians, and third parties should be clarified so that a better understanding of the roles of all parties may be acknowledged and understood.

The second aspect is that any campaign involving the term "Freedom of choice of physicians and hospitals" should have this term uniformly defined so that its meaning is clearly understood whenever it is used. The Principles of Medical Ethics, as revised in June, 1957 contain no specific reference to the term "free choice of physician", but rather deal with conditions under which physicians should dispose of their services and their responsibilities, and conduct themselves in the rendition of medical care. However, in the past two years, the House either has adopted or reaffirmed policy statements on free choice which are reviewed below. While there are no great differences in the concept of free choice as expressed, there are differences in wording which may lead to differences in interpretation.

A. The 1927 statement of the Judicial Council, as reaffirmed by the House in December, 1957 in adopting the report of the Reference Committee on Amendments to the Constitution and Bylaws states, among other tests, that a contract may be determined to be unfair or unethical:

> "When a reasonable* degree of free choice of physicians is denied those cared for in a community where other competent physicians are readily available."

B. The UMWA Suggested Guides, adopted in June, 1957, state that:

> "The fundamental concepts on which the recommendations are based are:
>
> "1. All persons, including beneficiaries of a third party medical program such as the UMWA Fund should have available to them good medical care and should be free to select their own physicians from among those willing and able to render such service
>
> "2. Free choice of physician and hospital by the patient should be preserved.
>
> "a. Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers."

C. The Guides for Evaluation of Management and Union Health Centers. Adopted December, 1955 and revised December, 1957, while recognizing the existence of closed panels, states that:

> "As one aspect of this responsibility the health center is urged to provide a free choice of medical service to the patient it serves. When service outside a specific center facility cannot be paid for under the terms of the plan, patients should be informed that they are privileged to obtain such services as they wish outside the center at their own expense."

D. The statement on Medical Relations in Workmen's Compensation, adopted in December, 1955 states that:

> "Disabled employees should have the right to accept physicians' services provided by employers, or to select another attending physician from a register of all other physicians in the community willing and qualified to perform the essential service."

In view of the fact that the term "free choice of physician" as used in these various statements and as used alone, out of any context, has resulted in misunderstanding and misinterpretation, it might be desirable to avoid use of this term in the abstract and to speak instead of the conditions under which physicians should dispose of their services and their responsibilities and conduct in the rendition of medical care. Thus, for example, the five points mentioned in the 1927 opinion of the Judicial Council which were reaffirmed and adopted by the House of Delegates in December, 1957 might, if supplemented by additional references to lay domination and quality of medical care, be used as criteria both to evaluate the physician's role in any given program and to determine the likelihood of that program providing the highest quality of medical care to the patient. These points are included in the following excerpt from the 1927 Report of the Judicial Council previously referred to, which states that:

> "Each case must be judged on its own merits after all the facts pertaining thereto are known. There are certain points, however, that may be formulated which, when present, one or more of them, definitely determine a contract to be unfair and unethical. These may be stated as follows:
>
> 1. When the compensation received is inadequate based on the usual fees paid for the same kind of service and class of people in the same community.
> 2. When the compensation is so low as to make it impossible for competent service to be rendered.
> 3. When there is underbidding by physicians in order to secure the contract.
> 4. When a reasonable degree of free choice of physicians is denied those cared for in a community where other competent physicians are readily available.
> 5. When there is solicitation of patients directly or indirectly."

The third aspect has to do with the relationship between the A. M. A. and the state medical associations in the "broad educational campaign" recommended. Since each state has problems peculiar to its area and would need to gear its campaign to these problems, this committee believes that such a project should be carried on through the state medical association offices. The A. M. A. could provide information, printed material, and even slides and proposed talks or news releases for state associations to use as they deemed best.

The Committee believes that the reference to "free choice of . . . hospital" should be reconsidered by the House of Delegates in view of the fact that the hospital is in reality a facility, and choice of facility is not germane to the issue involved.

At the 1958 annual session, the Board of Trustees summarized the Committee's statement in its "Supplementary Report C," together with the Board's recommendation that House action be deferred until the report of the Commission on Medical Care Plans became available. Although the Reference Committee concurred in the Board's recommendation, the House of Delegates amended the report of the Reference Committee by directing the Board of Trustees to proceed immediately with the educational campaign and relieve the Council on Medical Service of further responsibility in this matter.

GUIDES FOR EVALUATION OF MANAGEMENT AND UNION HEALTH CENTERS

In the previous Annual Report, the Committee noted that two changes would be recommended to the House in the text of this Guide. These changes were approved by the House at the 1957 Clinical Session. Following the adoption of these changes, the Committee further recommended to the Councils on Medical Service and Industrial Health that the wording of two footnote references would have to be changed in order to bring this Guide up-to-date. This recommendation was approved by the Councils at their meetings in June, 1958. Future printings of the Guides for Evaluation of Management and Union Health Centers will replace the reference to the 1954 Principles of Medical Ethics with the statement "From the 1954 edition of the Principles of Medical Ethics which are contained in the Opinions and Reports of the Judicial Council (1957) and which have been incorporated in the June, 1957 Principles of Medical Ethics." The reference to "Guiding Principles of Occupational Medicine" will be deleted and substituted with statement on "Scope, Objectives and Functions of Occupational Health Programs," J. A. M. A., Vol. 164, pp. 1104-1106 (July 6) 1957.

1958 SURVEY OF UNION HEALTH CENTERS

In February, 1958 the Committee initiated its third Survey of Union Health Centers. The first two reports on these centers which were published in 1953 and 1954 contained descriptions of twelve and seventeen health centers respectively. The new publication to be issued this fall will contain descriptions of 29 of the approximately 50 such centers in existence. The description of each health center will contain information and data for each plan for the following items: 1) History, 2) membership, 3) objectives of programs, 4) facilities, 5) financing, 6) budget and operating costs, 7) administration, 8) business and professional personnel, 9) benefits, 10) preventive aspects of these services. The 1958 Survey, which will contain information on these plans as of December 31, 1957, was secured as a result of field visits and a questionnaire. The types of medical services provided by union health centers are shown to range from "diagnostic only" to "comprehensive medical care," with the majority of the plans providing diagnostic and ambulatory medical care through closed panels of physicians employed at an hourly rate on a part-time basis, primarily. This survey is one of a continuing series to be conducted periodically in order to keep the medical profession informed of developments in this field.

In view of the numerous requests for copies of this publication, the 1958 Survey will include a copy of the revised Guides for Evaluation of Management and Union Health Centers.

A PRELIMINARY GUIDE FOR MEASURING WORK ABSENCE DUE TO ILLNESS AND INJURY

The last report of the Committee cited the studies, conferences and various published materials on the subject of work absence which had created a considerable amount of interest among many physicians. It was also reported that the Committee was engaged in the preparation of a Guide on the basis of whose definitions and formulas a uniform group of statistics could be compiled by physicians in industry. The preliminary Guide as approved by the Councils on Medical Service and Industrial Health will be published in pamphlet form and distributed this fall to several thousand physicians and other personnel working in this field. The Committee is inviting comments on the Guides it has prepared and plans to issue subsequent revisions based upon the suggestions and experiences of persons who use these Guides in their work.

MISCELLANEOUS

Being prepared for publication and distribution to the medical profession is a summary report on health and welfare plans under collective bargaining. This publication represents a distillation of some pertinent data relating to the provisions of hospital, surgical, and medical benefits in 300 plans which cover approximately five million workers, or over 40% of the total number of employees estimated to be covered by health insurance plans under collective bargaining as of the end of 1955. The material in the Committee's publication is based upon a study prepared by the Bureau of Labor Statistics of the United States Department of Labor. Its publication is considered to be an aid to those physicians and medical societies interested in various types of coverage and provisions of collective bargaining agreements.

The Committee has been authorized by the two Councils to conduct a survey of small plant occupational health programs for the purpose of providing the profession with descriptions of various examples in which such programs operate, the types of service they provide, the relationships of physicians involved in such programs to physicians in the community, and other aspects of the operations of these programs which will be of interest to the medical profession. An important by-product of this study is expected to be the recognition by physicians of the value of such programs, particularly among establishments hiring fewer than 100 employees.

The Committee has devoted some time to discussing the activities of the mobile units and the range of services they provide. At its future meetings the Committee will study this matter in greater detail particularly in determining to what extent is the screening of employees for the express purpose of detecting non-occupational diseases properly a part of an occupational health program.

Committee on Medical and Related Facilities

Since the last report concerning the activities of this Committee, Drs. W. F. Costello, Dover, New Jersey; Edward C. Rosenow, Jr., Pasadena, California; and Wendell C. Stover, Boonville, Indiana; were appointed to replace Drs. E. Dwight Barnett, San Francisco, California; Raymond M. McKeown, Coos Bay, Oregon; and Cleon A. Nafe, Indianapolis, Indiana. Other members are Drs. Willard Wright, Chairman, Williston, North Dakota; Robert L. Novy, Detroit, Michigan; Walter E. Vest, Huntington, West Virginia; David Henry Poer, Atlanta, Georgia; and J. D. McCarthy, Omaha, Nebraska, ex-officio. Staff includes: Mr. George W. Cooley, Secretary, Mr. Joe D. Miller, Research Associate, Miss Dorris Webb, Research Assistant and Miss Barbara Farley and Mr. Nicholas Griffin, Staff Assistants.

The Committee has met on three occasions—September 21-22, 1957 and February 8-9, 1958 in Chicago; and April 19-20, 1958 in White Sulphur Springs, West Virginia.

HILL-BURTON STUDY

The primary task of this Committee during the past year has been the completion of the study of the Hill-Burton Hospital Construction Program. A Progress Report on this study, made to the House in December, 1957, reviewed the study method and called special attention to some aspects of the program that could be improved. The study was completed this spring, and the resume of the findings, the conclusions, and the recommendations were reported to the Council and to the House of Delegates at the June Session. The conclusions and recommendations were approved by both the Council and the House of Delegates.

The recommendations emanating from this two-year study were presented to the United States House of Representatives' Subcommittee on Health and Science (Committee on Interstate and Foreign Commerce) by Dr. Willard Wright, Chairman of this Committee, and Dr. Julian Price, member of the A. M. A. Board of Trustees. This testimony was presented on May 6, 1958 in Washington, D. C.

The recommendations appear in the report of the Council for June, 1958 and it would serve no purpose to review them at this time. However, the Committee would urge that the members of the House discuss both the conclusions and recommendations with their state associations. Copies of the report are available for distribution at this time.

RELATIONSHIP BETWEEN PHYSICIANS IN PRIVATE PRACTICE AND THOSE NOT IN PRIVATE PRACTICE

The Board of Trustees has requested the Council to study the relationships of Doctors of Medicine who are not in private practice to those who are in private practice and to study the problem of actually providing leadership in the extension and strengthening of local health services throughout the nation. The Board stated that "the scope and extent of the problem be determined and that such action as may be needed and desired be taken to strengthen the American Medical Association as an organization for all Doctors of Medicine." The Council in turn, directed this Committee to undertake this study. This study is now under way and will be reported when completed.

PHYSICIANS PLACEMENT SERVICE

The results of the activities of the physicians placement services of the state medical associations and of the American Medical Association for the year July, 1957 through June 30, 1958 reflect the increased efforts of these services, both individually and collectively. Since the recommendation of the House of Delegates in June, 1951, for an expansion of the Council's Physicians Placement Service as well as that of the states, there has been an increase in both the type and amount of service.

For the past two years the Committee has reported that some type of placement assistance is available through each state medical association. More states indicate that more information is being secured for the community files when additional medical care is being sought; however, there are still some listings from the states that contain only the name of the town and a contact person. For many a young physician seeking a location for practice, the printed list of opportunities secured from the state medical association is the determining factor as to whether he and his family will visit that state and look at potential sites for their home. The young physician who looks at a list composed only of the names of towns and the contact person, may well ask what the list means. A thorough and distinctive description of each community seeking more medical care does take time, but if a sincere effort is being made to provide people of the state with more medical care, that time would seem to be well spent.

Some of the states offering descriptions of location opportunities, such as Illinois, Texas, Wisconsin, and California were leaders last year in the percentage of positions filled; perhaps other states should be mentioned but not all states indicate whether a position has been filled or has just been dropped, when it no longer appears on a list. Ohio, Illinois, Iowa, Virginia and Alabama have developed effective systems for notifying both physicians seeking a location and the A. M. A. of positions that have been filled or dropped. It is to be wondered if limited information could be the reason 28% of the physicians requesting location information decided to practice in a state not listed on their questionnaire.

A definition has not been offered for the requirements of a formal placement service. However, a number of self-termed informal services appear to have developed an excellent system of records and get a high percentage of placements; perhaps their services are more formal than they realize. All but six state placement services supply the American Medical Association with a list of opportunities for practice. Lists for two of these states are secured through other medical organizations in the state. An increasing number of states are preparing frequent revisions of their location for practice lists. The fact that most of these are regularly supplied to the Committee, without a request having to be made, has been helpful. The cooperation of the staff members of the state medical associations working with placement service activities has been appreciated by the staff working with this Committee.

Physician Requests.—During the year the number of physicians who have completed questionnaires for the Placement Service totaled 1,030. As of July, 1957, there were 866 physicians listed in the open file. This brings close to 2,000 the number of physicians, listed during the current year. Almost 1,500 physicians were listed the preceding year.

Most of these requests came from physicians who had recently completed an internship or residency and were seeking an initial location. The remainder consisted of physicians completing their period of Military Service, and physicians seeking to relocate. The majority of the requests were received by letter, reaching a monthly maximum of 205 in January. However, almost 300 physicians visited the office personally. Many of these were making cross-country trips to get a picture of the location opportunities available and were generally accompanied by their wives.

At six-month intervals physicians are contacted to see whether a location has been decided upon. Response to this follow-up is good, usually ranging over 80%. During the past year 35% of the physicians seeking a location were general practitioners, 14% were internists, 13% were surgeons, 7% were obstetricians and gynecologists, 5% were pediatricians, and the remaining 26% were divided among other specialties. The three states attracting the largest number of the physicians listed in the Placement Service files were California, Illinois and New York. General practitioners seemed more interested in information about opportunities in Illinois, California, Pennsylvania, New Jersey and Ohio. The specialists were most interested in California, New York, Illinois, Oregon and Arizona.

Community Requests.—During the year, 2,353 areas were listed as seeking a general practitioner. About one out of every six of these requests were for association with one or more physicians already in private practice. The increase in the current listings of 1,694 areas over the 1,355 listed at the time of the 1953 annual report may well be some reflection of the increase in the activity of both the state and the A. M. A. placement services. A breakdown of these requests for general practitioners by size of community is given below for the years 1953 and 1958.

General Practice Openings
by Size of Community

	Community Population up to 1,000	Community Population 1,001-2,000	Community Population 2,001-5,000	Community Population over 5,000	Total
1958	903	316	233	242	1,694
1953	764	264	165	162	1,355

Five states, Minnesota, North Carolina, Illinois, Wisconsin, and Michigan account for 583 of the 1,694 listings. Although this is hardly what one would expect, it is accounted for by the fact that 1) all these states have active placement services, and 2) many state placement services list all requests while others list only those that they feel can support a physician.

A review of the 521 specialty listings now in the placement service files shows the largest number of requests, in descending order, are for specialists in internal medicine, pediatrics, EENT, psychiatry, and ophthalmology. Most of these are requests for specialists to associate with another physician or to join a group. Among the states appearing most often in the specialty listings are Illinois, North Carolina, Wisconsin, Iowa, and Minnesota. Of the approximately 400 specialty openings filled during the year, the greatest number were in pediatrics, internal medicine, and surgery.

All requests to the A. M. A. from physicians seeking a location for practice and from communities, and others, seeking a physician are referred to the appropriate state.

State Placement Activities.—Five years ago, the two regional placement service conferences which were held included a number of states with either no placement service or an inactive one. These conferences were held at locations drawing a greater part of their representation from the southern states. During the past year all of the state medical associations, except three, participating in the two placement service conferences have been visited by a member of the Council's Placement Service staff. Reports on these visits have been prepared for publication in THE JOURNAL.

Every one of these states now has an active, working and cooperating placement service. All make use of formal questionnaires and card files and in all except one state, a listing of opportunities for practice is available. All except one state has a medical scholarship program (Kentucky has two) designed to aid medical students who plan to practice where the optimum distribution of medical care is still to be attained. In Alabama, Kentucky, and Mississippi the medical student who practices for five years in an area approved by the respective scholarship boards does not have to repay the loan. However, only Kentucky will accept out-of-state applicants for this program.

Alabama and Texas are the only states reporting a formal physician distribution survey which has applied the Community Rating Schedule. This Schedule, developed in 1953 by the Committee on Medical and Related Facilities, offers the state placement service a means of rating communities seeking more medical care, as to

(1) need priority, from the standpoint of the community, and

(2) desirability priority, from the standpoint of the physician.

A summary of the Texas survey appeared in the January 22, 1955 issue of THE JOURNAL and a summary of the Alabama survey will be published this Fall. The information obtained in each survey was, and still is, valuable in itself; however, the Committee in each state makes special mention of the excellent public relations value achieved by the visits to the communities, as well as by the correspondence.

The Medical Society of the State of North Carolina, as a result of a study, has prepared a card file which provides interested physicians with a county summary showing locations of practicing physicians and also includes the type of practice and the age range of each. This can be particularly helpful to the physician wishing to establish a solo practice. A detailed report of the activities of this placement service appeared in the May 10, 1958 issue of THE JOURNAL. Tennessee has an additional placement aid in the Tennessee Medical Foundation, organized for the purpose of bringing better distribution of health care to the people of Tennessee. The Tennessee State Medical Association is unique in using a numerical code instead of names when listing both communities and physicians. The medical scholarship program of the Nashville Academy of Medicine is so new that the first participating medical students are still in school.

Pennsylvania and Michigan had a formal placement service in an early developmental stage, five years ago, at the time of the placement conferences. The Pennsylvania placement service has developed an excellent system of forms to gather information for and from inquiring physicians. So interested are the physicians in the state in insuring the best distribution of medical care in Pennsylvania, that the Public Relations Conference of the 1958 annual meeting of The Medical Society of the State of Pennsylvania is to devote time to this subject. The Michigan Health Council, under the auspices of the Michigan State Medical Society, has the only full time physicians placement service director in any state. The efforts of the Michigan staff are devoted to serving the communities and physicians within the state and provides them an opportunity to become familiar with this active, result-getting service.

The Oklahoma State Medical Association was also in the area covered by the Conference and was in the group of states visited during the past year. Recently developed questionnaires collecting pertinent physician and community information are now being used to advantage, and a printed listing is available to those physicians seeking a location for practice in the state. Oklahoma was among the first of the states to give State Journal space to a list of physicians seeking location opportunities. For physicians in the state seeking an associate, as well as for groups interested in additional personnel, this is an excellent source of information.

A little over ten years ago the now well-known Kansas Plan for bringing more medical care to the people of the state was initiated. Through the combined effort of the medical profession and of the laymen of the state this three-way program is providing more and better distributed medical care for Kansas. The initial phase of the program was an enlargement of the Kansas School of Medicine. The second phase, which is a continuing one, was a cooperative one between the Kansas Medical Society and the Kansas School of Medicine to encourage the communities that needed and could support a physician to provide adequate facilities in which one could practice to the advantage of the community. A number of these towns have achieved national recognition through newspapers, magazines, and television. A list of towns requesting assistance in securing more medical care is supplied to the Council office by the Kansas School of Medicine. The third phase of the program has been of service not only to the practicing physicians of Kansas, but also to neighboring states. This part of the program provides short postgraduate courses around the year to physicians who can come to the medical school and even, in some cases, to those who do not manage to get that far from home. The cooperation between the Kansas Medical Society and the Kansas School of Medicine is paying medical dividends to the people of the state.

Publicizing the Physicians Placement Service.—Two specific means have been used to call the placement services to the attention of medical students, interns and residents: (1) a simple check sheet in the form of a leaflet, *LOOK BEFORE YOU LEAP. . . .* into the selection of a place to practice," was prepared for the use of the physician seeking a location for practice. The list raises pertinent questions related to

(a) the community need,
(b) the desirability of the location from the viewpoint of the physician's family, and
(c) the desirability of the location, from the physician's viewpoint.

Potential sources of placement information are included in the leaflet. Approximately 30,000 of these check sheets have been distributed since it was printed in April of this year. The bulk of this number has gone to the state placement services and to the executive secretaries of the county medical societies for further distribution. These have been made available to physicians seeking a location, and have been used in connection with the Senior Day programs which state associations co-sponsor with the medical schools. The secretaries of the county medical societies were also requested to supply the teaching hospitals with sufficient copies of the leaflet to reach each intern and resident.

(2) The Physicians Placement Service exhibit designed for the physician seeking a practice location, was shown at the Student A. M. A. meeting held in Chicago, May 2-4. An exhibit for this group on placement information has little immediate value because of the small number of interns and residents attending. However, each year more physician questionnaires secured at the Student A. M. A. meeting are returned by the students still in medical school. Some letters to the placement service attest to the fact that interns and residents remember having first heard of the service through a Student A. M. A. meeting.

GROUP PRACTICE

For the past several years the Committee has been collecting information to be used in preparing a directory of group practice units. The current card file contains 1,008 such groups, located in the United States, Hawaii, and Canada. Sources of information for this file have been the membership rosters of the American Association of Medical Clinics and the National Association of Clinic Managers, newspaper clippings and stationery letterheads.

Recently an information sheet was sent, for verification, to each of the groups in the file. A breakdown of the 822 sheets returned shows

689	groups with more than two physicians
100	groups with only two physicians
8,958	physicians practicing in these groups
18	indicate their group has been dissolved
15	former two-man groups are now individual practices

Representatives of the American Association of Clinic Managers, the National Association of Clinic Managers, and this Committee held a conference in Kansas City during the 1957 meeting of the American Association of Medical Clinics. Among the items covered was the following suggested definition of "group practice":[1] "Group medical practice is the application of medical services to the needs of the patient by a number of physicians working in systematic association with the joint use of office facilities, equipment, and technical personnel; and with centralized administration and financial organization."

SEARS-ROEBUCK FOUNDATION

The Committee has continued to cooperate with the Sears-Roebuck Foundation program to assist communities in planning medical facilities. This program presently is directing communities in making a survey to determine whether or not a physician could be supported by the area and is needed. If the survey is positive, guidance is available in raising money for a medical facility. Floor plans are provided by the Foundation, for either a one or two physician facility. The building in Rochelle, Georgia will be the first of the facilities to be completed. Both the state medical associations and the A. M. A. are kept informed of all community requests and assistance given by the Foundation.

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[1] Neither the Council nor the Committee on Medical and Related Facilities has as yet approved any definition of group practice and will not do so until such a definition can be related to a definition of other terms, such as clinic, medical clinic, and medical center.

The leaflet, "DOCTOR . . . . here is an opportunity for you," and the booklet, "Plan for Community Medical Assistance," have been made available to the state associations for distribution and single copies are sent to inquiring physicians and communities.

A. M. A.–A. N. H. A. LIAISON COMMITTEE

In the early part of 1957, with the approval of the Board of Trustees, the Council on Medical Service re-established a Liaison Committee between the American Medical Association and the American Nursing Home Association. A. M. A. representatives to this committee are Drs. Willard A. Wright, Williston, North Dakota, Chairman of the Council's Committee on Medical and Related Facilities, Dean W. Roberts, Chicago, Illinois, a member of the Committee on Indigent Care, and Frederick C. Swartz, East Lansing, Michigan, a member of the Committee on Aging. The Liaison Committee has held three meetings during the year: in September, 1957, and in February and May, 1958.

One of the important activities growing out of these meetings has been the decision to develop suggested guides and standards for medical care in nursing homes. To this end, staff members of the Council are visiting a select group of the better skilled nursing homes in 22 states this summer, in an effort to determine the type of medical care and supervision actually being provided in these facilities. This information will provide a basis for developing workable guides and standards for all skilled nursing homes. In addition to this information, the staff will also obtain data on other important areas of nursing home operation, such as rehabilitation, social service, plant and equipment, and costs. Concurrently with this field survey, questionnaires covering much the same area of operation are being mailed from the American Nursing Home Association's national office to approximately 4,500 member homes throughout the country. Tentative plans call for the results of these two surveys to be published sometime this fall, along with "Recommended Guides and Standards for Medical Care in Nursing Homes."

Other problems currently under study by the Liaison Committee are the adequacy of welfare payments for nursing home care, ways of financing new and improved nursing home facilities, and stimulating a better working relationship between nursing homes and physicians at both the state and local levels.

Committee on Prepayment Medical and Hospital Service

The membership of the Committee on Prepayment Medical and Hospital Service is composed of Drs. Percy E. Hopkins, Chicago, Chairman; John Conway, Clovis, N. Mex.; Charles G. Hayden, Boston; Quentin Kintner, Port Angeles, Wash.; Robert L. Novy, Detroit; O. B. Owens, Alexandria, La.; Carl F. Vohs, St. Louis; Carlton E. Wertz, Buffalo; and J. D. McCarthy, Omaha, ex officio. Mr. Howard O. Brower serves as Committee secretary assisted by Mr. John Guy Miller, Research Associate and Mrs. Ann McConnell, Staff Assistant. Since the last annual report the Committee has had four meetings. Two meetings were held in Chicago, one in Washington State, and one in Texas. At both the Washington and Texas meetings physicians and plan executives from those and contiguous states discussed many problems relating to insurance and prepayment plans.

VOLUNTARY HEALTH INSURANCE

Blue Shield and Other Medical Society Approved, and Blue Cross or Blue Cross Coordinated Plans: The number of persons enrolled in voluntary health insurance plans which are either approved or sponsored by medical associations or coordinated with local hospital benefit plans increased during 1957 to a total of 44,890,863. This represents an increase of 2,610,405 over the figure of 42,280,458 at the end of 1956.

All Types of Insurance Mechanisms: All insurance and similar mechanisms designed to assist in financing health care continued to report impressive enrollment gains. By the end of 1957 approximately 121 million persons had some kind of hospital expense protection. That represented a 4.7% increase for the calendar year. The extent of surgical expense protection of all types increased 2.5% covering 109 million persons. The number of persons having regular medical expense insurance increased 10.7% covering approximately 72 million people. Those having major hospital and medical expense coverage at 1957 year end totaled 13,262,000, an increase of 49.4%.

TABLE 1.—*Distribution of Hospital, Surgical, and Regular Medical Expense Coverage By Type of Insuring Organization, Dec. 31, 1957*

	People Protected, No.		
Type of Insuring Organization	Hospital Expense	Surgical Expense	Regular Medical Expense
Insurance Companies:			
Group Insurance	48,439,000	48,955,000	28,317,000
Individual—Policy Insurance	28,673,000	24,928,000	7,371,000
[illegible]	77,112,000	73,883,000	35,688,000
[illegible] * in Company Protection	6,920,000	6,427,000	2,448,000
Net Total for Insurance Companies	70,192,000	67,436,000	33,240,000
Medical Society Plans (Blue Shield) and Blue Cross†	54,923,000	45,383,000	36,926,000
Independent Plans:			
Industrial Plans	3,126,000	3,220,000	3,081,000
Community Plans	665,000	1,172,000	1,177,000
Consumer Sponsored Plans	165,000	303,000	233,000
Private Group Clinics	591,000	602,000	628,000
College Health Plans	400,000	300,000	900,000
Total for Independent Plans	4,947,000	5,397,000	6,019,000
Deduction for Duplication:			
Persons Protected by More Than One Type of Insuring Organization‡	8,630,000	9,305,000	4,372,000
Net Total, Persons Protected	121,432,000	108,931,000	71,813,000

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* Number indicates those who may carry insurance with more than one company.

† Includes some plans which may not be medical-society-approved; hence the variance between the HIC figure and the A. M. A. figure as shown previously.

‡ Estimated number of persons who carry both insurance company and Blue Shield-Blue Cross or similar contracts.

Voluntary Health Insurance Benefits Paid

	Type of Insuring Organization			
Type of Benefit	Blue Shield Blue-Cross	Insurance Companies	Independent	Total
Hospital Expense	$1,159,000,000	$1,080,000,000	$101,000,000	$2,340,000,000
Surgical and Medical Expense	478,000,000	575,000,000	114,000,000	1,167,000,000
Total	$1,637,000,000	$1,655,000,000	$215,000,000	$3,507,000,000

The figures in the preceding paragraph as well as those shown in the following tables were obtained from the 12th Annual Survey of the Health Insurance Council on "Voluntary Health Insurance in the United States."

As in the past, the Committee on Prepayment Medical and Hospital Service assisted the Survey Committee of the Health Insurance Council along with the Blue Shield and Blue Cross Commissions, insurance companies (through their trade associations) and other contributing organizations. All figures were compiled and collated to eliminate duplication in reporting the numbers insured as explained in the footnotes to the foregoing table.

In releasing the 1957 year-end figures, the Health Insurance Council estimated that, by the middle of 1958, hospital expense benefit enrollment had increased to some 123 million persons, with surgical and regular medical expense benefit coverages extending to 111 million and 74 million respectively. Moreover, the major hospital and medical expense benefit figure was then estimated to be 15 million. These interim estimates would indicate that over 70% of the entire United States civilian population is currently protected by some form of voluntary health insurance.

Growth in number of persons insured does not tell the full story. Medical-society-approved plans and other programs are continuing to (1) reevaluate underwriting practices regarding age limits, size of groups and individual enrollment; (2) make improvements in existing coverage; and (3) experiment in newer types of benefits and coverage.

The amount of health care financed through the medium of insurance and similar mechanisms has attained significant proportions as reflected by the sums reported in claims during 1957. This is evidenced by the following table which indicates the disbursements by category of expense and by type of insuring organization.

COMMITTEE PUBLICATIONS

The health insurance brochure entitled "Voluntary Prepayment Medical Benefit Plans" was revised this year, as well as the supplementary pamphlet "Charts and Graphs". Copies of each were mailed to the members of the House of Delegates, Board of Trustees, and officers of the Association, state and county medical society secretaries and executive secretaries, plans listed in the brochure, and hospitals with approved internships and residencies in addition to a large number sent in response to individual requests.

The popular pamphlet "Growth in Voluntary Health Insurance" is in the process of revision. This publication summarizes the total enrollment information relating to all types of programs and also defines the meanings of certain terms used in the health insurance field.

HEALTH INSURANCE CLAIM FORMS

The Council office continues to hear of interest in simplified claim forms which were developed by a special committee of the Health Insurance Council at the request of the A. M. A. These forms are used in securing medical data and opinions essential to insurance claim processing. The Health Insurance Council, through its participating associations, continues to encourage companies in their use. It has distributed brochures to the industry which outline the purposes for which the forms were designed as well as the background of their development.

The Council office continues to receive periodically expressions of dissatisfactions from physicians when they are called upon to complete multiple copies of claim forms for a claim involving the same illness and the same person. It is of course understandable, in those instances where insured patients are protected by more than one type of coverage for the same contingencies, that it is necessary to provide each insuring organization with appropriate information.

We have continued our efforts through contacts with medical directors of insuring organizations so that physicians will not be called upon to undertake any non-essential clerical duties in connection with claim processing. In all instances, these medical directors have been both sympathetic to the problems and cooperative in taking appropriate steps to remedy them. In view of this the Council office believes it is in a unique position to assist physicians who receive requests to complete multiple copies of forms for the same claim.

Members of the profession are therefore encouraged to communicate with the Council office at any time they feel assistance is either necessary or desirable.

INSURANCE ABUSES

Although it is impossible to maintain an accurate record of insurance committees either within constituent associations or component societies, it would appear that the mechanisms now available are effecive. This assumption is based upon the fact that a decreasing incidence of alleged insurance abuses is reported to the Council office. As in the past, whenever the Council on Medical Service does receive complaints involving either misunderstandings or suspected insurance abuses, these are referred to appropriate committees at the local level so that the questions may be resolved equitably and expeditiously.

PRE-RETIREMENT FINANCING OR "PAID-UP" HEALTH INSURANCE

At the 1957 Clinical Session a portion of the Council report dealt with the problem of Pre-Retirement Financing of Health Insurance. At that time, a specific proposal had been submitted for consideration. However in the opinion of the Council and the Committee on Prepayment Medical and Hospital Service, the suggested proposal contained certain elements which were deemed incompatible. That report mentioned the variety of approaches to the problem, including those now in use and also those which are under consideration. The Reference Committee encouraged a continuation of these studies.

Insuring organizations, including Blue Shield, as well as Legislative Commissions and others, are showing increasing interest. Resolution #7, relating to this subject as modified and adopted by the House of Delegates during the 1958 Annual Session, has been referred to the Council on Medical Service for further study.

SUGGESTED GUIDES FOR MEDICAL SOCIETY SPONSORED VOLUNTARY PREPAYMENT MEDICAL BENEFIT PLANS

At the 1958 Annual Session, the Council submitted to the House of Delegates suggested guides for medical society approved health insurance programs. Upon recommendation of the Reference Committee these suggested guides were re-referred to the Council for further study and report at the 1958 Clinical Session.

The Council is proceeding with a further review and analysis of the suggested guides, and will submit a supplementary report at the time of the Clinical Session.

OTHER ACTIVITIES AND LIAISON

In the period covered by this report, members of the committee as well as members of the Council and other Headquarters staff attended a wide variety of meetings dealing with insurance and related activities. These included both the Annual Meeting and the Professional Relations Conference of Blue Shield, the Annual Meeting of the Health Insurance Association of America, and the Annual Meeting of the Association of Life Insurance Medical Directors of America. Throughout the year there have been frequent contacts with officers of the Medical Section of the American Life Convention as well as discussions with those engaged in administering professional liability insurance. In addition, consideration has been given to suggested new methods of financing health care as well as suggestions for modifying the method of rating professional liability insurance.

The foregoing are examples of activities in addition to the frequent and continuing contacts with the Blue Shield Commission Staff and the Staff of the Health Insurance Council. As some of these newer developments progress they will be reported promptly to the profession.

Committee on Relations with Lay-Sponsored Voluntary Health Plans

The membership of the Committee on Relations with Lay Sponsored Voluntary Health Plans is composed of Drs. H. Russell Brown, Watertown, S. D., Chairman; Lewis A. Alesen, Los Angeles; F. J. Elias, Duluth, Minn.; J. Stanley Kenney, New York City; George S. Klump, Williamsport, Pa.; Hoyt B. Woolley, Idaho Falls, Idaho; Mr. C. H. Crownhart, Madison, Wisconsin; and Dr. J. D. McCarthy, Omaha, ex officio. Staff member is Mr. Howard O. Brower, Secretary.

The Committee has held no scheduled meeting during the period of this report. Primarily this is because the Commission on Medical Care Plans is concerned with many aspects of lay-sponsored voluntary health plans which normally are within the realm of this Committee's interest. Two members of this Committee also serve on the Commission on Medical Care Plans.

Although no formal meetings have been held, the Committee continues to receive information with respect to health benefit programs within the field of its official interest.

It is the understanding of this Committee that the Commission anticipates the filing of its final report by the time of the 1958 Clinical Session.

Respectfully submitted,

Joseph D. McCarthy, M.D., Chairman
John Flack Burton, M.D.
Reuben B. Chrisman Jr., M.D.
Thomas J. Danaher, M.D.
J. Lafe Ludwig, M.D.
Robert L. Novy, M.D.
Russell B. Roth, M.D.
Carlton E. Wertz, M.D.
Hoyt Woolley, M.D.
David B. Allman, M.D.
George W. Cooley, Secretary

COUNCIL ON CONSTITUTION AND BYLAWS

During the period covered by this report (July 1, 1957, through June 30, 1958) the Council on Constitution and Bylaws met three times for the purpose of considering problems which had been referred to it. Those matters which demanded the most time and which were subsequently considered by the House of Delegates at the June meeting related to the Heller Management Survey, Service Membership for Veterans Administration physicians, and the Scientific Assembly.

Heller Management Survey.—It will be recalled that prior to the Clinical Session in Philadelphia, a management survey of the American Medical Association headquarters office was made and referred to a special committee of the House of Delegates for study. This Committee, known as the Hyland Committee, reported to the House in December, 1957. At that time, the House approved a number of changes in the Association's Constitution and Bylaws, including a restatement of the composition of the Board of Trustees, a combining of the offices of Secretary and Treasurer, the elimination of the positions of General Manager and Assistant Secretary and the substitution therefor of an Executive Vice President and an Assistant Executive Vice President. With the approval of these changes, the whole matter was referred to this Council for the purpose of preparing the wording necessary to effectuate them. The required amendments to more than forty sections of the Constitution and Bylaws were submitted to the House in San Francisco in June, 1958, and approved without a dissenting vote.

Service Membership for Veterans Administration Physicians.—Resolutions presented to the House of Delegates at the Philadelphia meeting questioned the wisdom of permitting physicians employed by the Veterans Administration to become Service Members of the Association and thus exempt from the payment of dues and the restraints and disciplines resulting from active membership in a component society. On the basis of the oral and written suggestions which the Council received on all facets of the problem, it recommended that such physicians should no longer be eligible for Service Membership. This recommendation did not meet with the approval of the House in San Francisco and the matter was referred to the Council. The Council was directed to try to find some method of encouraging all Service Members, not just Veterans Administration physicians, to join a component medical society if eligible to do so. This matter will be reported to the House at a future time.

Scientific Assembly.—A committee to study the Scientific Assembly, appointed by the Speaker of the House of Delegates following the Philadelphia meeting, met with the Council to discuss some Bylaw changes which the committee felt would result in a more efficient functioning of the Scientific Assembly. These changes were subsequently submitted to, and approved by, the House in San Francisco.

Future Problems.—Problems which will be discussed at future meetings of the Council include the Service Membership issue, the question of exempting resident physicians from the payment of dues during the course of their residency study, and the question of whether or not to recommend the substitution of Sturgis' Standard Code of Parliamentary Procedure for Robert's Rules of Order.

New Printing of Constitution and Bylaws.—Because of the many changes in the Constitution and Bylaws adopted by the House in San Francisco, a new printing of these documents is necessary. Copies may be obtained by writing the Council's Secretary at AMA Headquarters.

Personnel Changes.—The term of office of Dr. Stanley H. Osborn of Hartford, Connecticut, a charter member of this Council, expired in June, 1958. He was replaced by Dr. William D. Stovall of Madison, Wisconsin. Dr. Floyd S. Winslow of Rochester, New York, also a charter member of the Council, died during the year. Elected to serve the balance of his term was Dr. William Hyland of Grand Rapids, Michigan. Dr. Warren W. Furey of Chicago was elected to the Board of Trustees. Elected to serve the balance of his term was Dr. W. C. Bornemeier, also of Chicago.

Respectfully submitted,

B. E. Pickett, M.D., Chairman
Walter E. Vest, M.D.
William D. Stovall, M.D.
William Hyland, M.D.
Walter C. Bornemeier, M.D.
George E. Hall, Executive Secretary.

WOMAN'S AUXILIARY

The San Francisco Convention of the Woman's Auxiliary to the American Medical Association was a return to the scene of the first annual meeting held in June 1923. This brought to a close the thirty-sixth year of Auxiliary activity and service. During the year, the Auxiliary became incorporated (not for profit). This summary covers the year 1957-58 under the presidency of Mrs. Paul C. Craig. The theme for the year again pinpointed our area of service in health education: Health Is a Joint Endeavor. This theme also stands as a beacon to our existence as an auxiliary. We cooperate with the American Medical Association. They lead. On national, state and county levels, we seek advice and guidance—a joint endeavor.

Reports from forty-eight states, Alaska and Hawaii showed that our activities have been chiefly in the realm of health education. Safety at home, especially for the aged, the very young, and the handicapped was stressed in 1957-58. Many projects were directed toward safety on the highways, driver training and fitness. Health programs and science fairs participation has been predominant in many state reports.

Individually, members are the golden thread which unites us with other individuals and other forces concerned with individual and community health. We have striven to keep our membership informed so that we can increase our effectiveness in leadership and health matters as an auxiliary.

Increased cooperation in legislation has resulted from the attendance of our national chairman, Mrs. Charles L. Goodhand, at meetings of the American Medical Association Committee on Legislation, the appointment of Legislative Key Women, and the generosity of the A. M. A. Committee in sharing its information and findings with the Auxiliary committee. This cooperation has given the Auxiliary the strength, advice and guidance which we need and seek. Our executive secretary, Miss Margaret Wolfe, was appointed a member of the A. M. A. Task Force, and kept the Auxiliary informed of this group's activities.

Mrs. Paul C. Craig commented in her annual report, "The most important things we were trying to accomplish this year: an evaluation of our work, exploration of methods used by groups to improve their productivity, and building closer working relationships with our medical associations.

"... During visits to state conventions this spring I have always referred to A-B-C. A—stands for David B. Allman, M.D., whose words on the President's Page of the George Washington's birthday issue of THE JOURNAL (JAMA, Feb. 22, 1958) gave us the: B—biggest boost of the year in: C—cooperation with our doctors. This has been invaluable; coming from the physician heading the American Medical Association it has intrinsic and intangible value of great significance for the future. Thank you, for all of us, Dr. Allman."

Our cardinal concern has been that you know the value of the cordial cooperation, advice and guidance given us by representatives of A. M. A. Drs. David B. Allman, Gunnar Gundersen, George F. Lull, and members of the Board of Trustees have given freely of their time and guidance to many of our leaders as occasion has arisen. Dr. Ernest B. Howard is our liaison to the Advisory Council. He has given many hours to consult with us and guide us. At each of our national meetings, convention and conference, he gives the "A. M. A. Roundup," an up-to-the-minute summary of events about which it is important that we have accurate information. It is always helpful, and enthusiastically received by our members.

In 1957-58 every department of the A. M. A. has given assistance to the Auxiliary officers—national and state. The alacrity with which requests by mail are answered must be commended. National and state officers receive the Washington Letter and other publications from A. M. A. Staff members and chairmen of many departments and councils have appeared on our conference panels and convention round tables. We have developed Auxiliary activities in consultation with the Committee on Civil Defense of the Council on National Defense, Bureau of Health Education, Law Department, Committee on the Medical Aspects of Automobile Injuries and Deaths, Council on Medical Service, Council on Mental Health, Department of Public Relations, Committee on Rehabilitation, and the Council on Rural Health. We are fortunate to have headquarters in the A. M. A. Building at 535 North Dearborn Street, Chicago, and we express our thanks for the offices provided for us. Miss Margaret N. Wolfe, Executive Secretary, heads a staff of five members who efficiently and tactfully carry on the many details of our work, including the quarterly publication of our official Bulletin.

The two specific projects to which the American Medical Association requested that we direct our efforts have been our major concern: Auxiliary members were proud to report, 57,502 *Today's Health* credits in 1957-58; we contributed $126,366.38 to the American Medical Education Foundation, which is an aggregate sum from all constituent auxiliaries and a percent from our national budget. Our gifts to A. M. E. F. since 1951 total $521,300. These two projects have gained momentum from one year to the next because of the excellent direction from your staff. Our chairmen are always enthusiastic in acceptance of this assignment.

Recruitment has become increasingly important since it has been broadened to include paramedical careers, adding new members to the team. We have provided $144,590 in scholarships and loans this year.

At the 1958 convention we voted token gifts of $100 to the United States Committee of the World Medical Association; $100 to the Crusade for Freedom; $100 to the Student American Medical Association Foundation (a loan fund for medical students); and $5,000 to the American Medical Education Foundation in memory of deceased members during the year 1957-58.

During the past year, Mrs. Paul C. Craig, Mrs. William Mackersie and Mrs. George Garrison, assisted in the organization of the Woman's Auxiliary to the Student American Medical Association. The first constitutional convention of the Student A. M. A. Auxiliary was held in Chicago in May, 1958, after a year of ground work in which the A. M. A. Woman's Auxiliary served in an advisory capacity. Mrs. George Garrison was the first officially appointed liaison between the A. M. A. Woman's Auxiliary and the Student A. M. A. Auxiliary, and was present at the meeting in Philadelphia in May, 1957, when the organization of a Student A. M. A. Auxiliary was discussed. As Mrs. Craig stated in her annual report "assisting this group may well prove to be the most important thing we did during the year 1957-58."

The national president of the Auxiliary attends state conventions or conferences and represents the National Auxiliary at meetings of many groups concerned with health as well as numerous non-medical meetings. Mrs. Craig attended thirty-one state meetings; other officers or chairmen visited twenty, including Alaska, which was visited for the first time. She appeared before the A. M. A. House of Delegates at both the Interim and June sessions and was a guest at the Public Relations Institute; the conferences on Mental Health and Rural Health; the A. M. E. F. Board meeting; Interim Session; Conference of Physicians and Schools; Rural Health Conference; and the planning meeting for Medical Education Week. She also represented the Auxiliary at meetings of the American Cancer Society; National Society for the Prevention of Blindness; President's Conference on Children and Youth; Woman's Advisory Council of Federal Civil Defense Administration; National Foundation for Infantile Paralysis; President's Committee on Employment of the Physically Handicapped; President's Committee on Traffic Safety and Regional meetings; National Safety Congress; Automotive Safety Foundation; and informal meetings of the American Dietetic Association and Hospital Auxiliaries. In our effort to effect a smooth transition from one administration to the next, where possible the president-elect, other officers and our executive secretary also attended many of these meetings. This was planned by Mrs. Craig so that our activities would not lose momentum.

Our total membership is approximately 77,713. National active members are the wives of active or service members of the American Medical Association (or widows of men who were in good standing at the time of their deaths). National associate members are those members of constituent auxiliaries who do not qualify for active membership.

Following the San Francisco convention officers reviewed their plans for the coming year. Realizing the truth of the statement of David B. Allman, M.D., 1957-58 president of the American Medical Association—

"... In recent years we have seen a narrowing of the breach that once existed between science and religion. And in medicine we are witnessing even more than that; not only mutual respect in the area of thought and philosophy, but also an actual, practical merging of efforts.

"In my opinion, this trend offers great hope and encouragement for the cause of brotherhood. Medicine and religion both speak a universal language—applicable to all men and understandable by all men. Religion provides health and healing for men's souls, and teaches them to love their brothers. Medicine provides health and healing for men's bodies and minds, and it exists for the service of all humanity. Both are the essence of brotherhood. Medicine and religion, working actively together under the protective warmth of American democracy, can contribute immeasurably to the cause of brotherhood—here and abroad." And Gunnar Gundersen, M.D., 1958-59 president—"The medical profession is fortunate in that it knows no curtain of any kind, whether it be iron or bamboo, and stands willing to share its information with everyone for the purpose of improving health conditions everywhere."—these messages have opened new horizons and inspired us to extend a helping hand to our neighbors. We give thought to our Auxiliary, its activities, and our personal actions. For the coming year we have pledged to make a united effort to consolidate the value of our citizenship by participating in worthwhile community and social activities which will further the good of all. Mrs. Frank Gastineau, our President-Elect, and I planned the October Conference of National Officers, Chairmen and States Presidents and

Presidents-Elect around the theme "Auxiliaries *in Action*" so that we might increase our effectiveness in community service. Thus, in keeping with our 1958-59 *theme*, we will "Safeguard Today's Health for Tomorrow."

Mrs. E. Arthur Underwood, President

AMERICAN MEDICAL EDUCATION FOUNDATION

This report of the American Medical Education Foundation covering the period from July 1, 1957, to June 30, 1958, summarizes the results of the 1957 year and describes the activities of the first half of the Foundation's eighth year.

It is with pleasure that we report the Foundation's steady financial growth in its aid to the nation's 85 medical schools Through the A. M. E. F., physicians and their medical societies have assisted medical education with gifts totaling more than 7 million dollars.

At the close of the Foundation's seventh fiscal year on Dec. 31, 1957, the total of contributions received since 1951 was $6,741,924. In this last calendar year it is gratifying to report that the number of contributors increased from 39,892 to 44,155 with a total income of $984,786.83. During the spring months of 1958 the Foundation reached and passed the 7-million-dollar mark.

The American Medical Education Foundation takes pride in this significant increase in income, but it also would like to report the development across the country of interest and enthusiasm in the program which has been demonstrated by the development of committees and the efforts of the state and county societies, and by the recognition of the importance of its progress in meetings everywhere. In addition, the Foundation can point to a significant increase in the concern of the physician for his individual school as demonstrated by the greater support for alumni appeals during the past few years.

The Foundation's efforts have awakened the physician to the needs of the medical schools; however, it has also demonstrated to many others the concern of the medical profession over these needs and thus stimulated additional sources of income for the schools.

Distribution of Annual Grants to the Schools

In February, 1958, the American Medical Education Foundation made its second direct distribution of funds to the medical schools. (Until two years ago the A. M. E. F. grants were distributed jointly with the National Fund for Medical Education.) The total 1957 moneys distributed among the 85 schools, according to the grants formula decided upon by the Directors of the Foundation, was $984,786.83. Of this amount $480,850.00 of undesignated funds were distributed as basic grants equally among all the schools; $503,936.83 designated by donors for a specific school was distributed as an addition to the basic grant.

Letters of appreciation from the deans and university presidents of these 85 schools again pointed up the significant worth and valuable assistance of these grants. Many of these letters emphasized that the fluid nature of the gifts gave them an importance greater than the proportion they represented in the total medical school income.

State Activities and Gifts

By its very nature the American Medical Education Foundation is the sum total of the local and state activities which have been organized to further its purpose. This report cannot detail any but examples of the 51 state efforts that were responsible for 1957's successful campaign.

Methods by which these committees across the country achieved success varied from state to state. Some states carried on an intensive and extensive mailing campaign to its membership. Other states successfully organized county committees and conducted personal solicitation campaigns. In several states the elected council constituted itself as the A. M. E. F. committee to promote county participation throughout the state.

In the fall of 1957 Indiana joined California, Illinois, Utah, Arizona, and Nevada by voting to add $10.00 to the state association dues as a gift to the American Medical Education Foundation from every member of the state society. This collective arrangement has also been adopted by many of the county societies across the country. These counties cannot be enumerated here but they are growing in numbers. For example: during the first six months of 1958 eight of the county societies in Texas voted an increase in their county dues to show a 100% participation by their members.

During the 1957 year a significant growth in the number of individual contributors has occurred in a large number of states. Some of those states where the number of contributors increased most dramatically were the District of Columbia, Georgia, Kansas, Minnesota, Montana, New Mexico, Ohio, Pennsylvania, South Carolina, Texas, Washington, West Virginia, and Wyoming.

Significantly but contrary to popular expectation those states with dues increase programs also had additional substantial voluntary contributions from their members. Though this was a considerable total in California and Illinois with their large memberships, special mention should be made of Nevada which led the United States in membership participation (well over 100% because of multiple gifts from its members) and a larger per capita contributions from its members.

While on the subject of the dues increase states it should be mentioned that Illinois which first adopted the dues increase plan has in addition organized county chairmen and committees in every society early during 1958 to promote voluntary gifts from its members over and above the $20.00 dues contribution.

In 1957 New Jersey again gave the Foundation generous assistance with a check for $10,000 from the state society. In April, 1958, an additional donation of $15,000 was given with the stipulation that this was to be included as a supplemental gift for 1957 "in recognition of the honor bestowed upon the Medical Society of New Jersey in having one of its members, Doctor David B. Allman of Atlantic City, serve as President of the American Medical Association 1957-1958."

Many states, during the period covered by this report, have given generous treasury grants to the Foundation and in appreciation subsequently received Awards of Merit at the June meeting in San Francisco. The state societies receiving these Awards were Arizona, Illinois, Kansas, Massachusetts, New Jersey, South Carolina, Utah, Virginia and Iowa.

Laudatory mention is due to the following professional groups who have been consistent contributors to the Foundation since its inception and in 1957 again gave generously: Southern Medical Association; Audio-Digest Foundation; American College of Radiology; the American Society of Anesthesiologists, and Interstate Post Graduate Medical Society of America.

During the past three or four years, most of the states have decided to concentrate their campaign activity during the fall months. Despite this continuing decision, we are pleased to report that the income of the Foundation for the first half of 1958 is well ahead of the same period of 1957. With this evidence of continued strong support during a period when business has been unfavorable, it is optimistically believed that the coming campaign months will bring this year's totals to a higher point than those of previous years.

Officers and Board of Directors

The Board of Directors of the American Medical Education at its meeting in December, 1957, elected Dr. George F. Lull as President of the Foundation. Dr. F. J. L. Blasingame was elected Vice-President, and Dr. Edward L. Turner was continued as Secretary-Treasurer. Dr. Louis H. Bauer, who has held the presidency since 1953 asked that he not be renominated because of other time-consuming responsibilities. He will continue, however, as a member of the Board of Directors.

At the same time the Board of Directors proposed changes in the constitution which were adopted at a meeting on Feb. 11, 1958. These changes added four new members to the Board of Directors so that additional wisdom and influence could strengthen the Foundation's program. At this meeting on Feb. 11, 1958, four men were elected to fill these new positions. They were: Dr. Lowell T. Coggeshall, President of the Association of American Medical Colleges and Dean of the Division of Medical Sciences at the University of Chicago; Dr. Hugh H. Hussey Jr., Dean of the School of Medicine at Georgetown University and a member of the Board of Trustees of the American Medical Association; and two recent past-presidents of the A. M. A.—Dr. Dwight Murray of Napa, Calif., and Dr. Walter B. Martin of Norfolk, Va.

State Chairmen's Meeting

On Jan. 25-26 of 1958 the Seventh Annual State Chairmen's Meeting was held at the Drake Hotel in Chicago. Only a few state chairmen were unable to be present and, in addition, there were a number of metropolitan chairmen, executive secretaries, and committee men to bring attendance to 84 registered at this largest and most successful of the Chairmen's meetings yet held.

Chairmen, who came from all over the country to attend this two-day meeting, launching the 1958 campaign, were addressed by several medical educators and experts on fund raising. In addition, they had the opportunity to exchange ideas and methods that strengthened their own programs.

Total Physician Contribution to Medical Schools, 1957
(Direct Gifts by Restriction)

Restriction	Amount of Contributions	No. of Contributions
Unrestricted	$1,467,097.51	36,615
For teaching budget	48,852.55	1,260
For specific department	85,806.37	1,541
For building fund	895,946.91	5,131
For research	204,045.18	1,636
For scholarship and student aid	71,750.74	939
For library	8,810.08	357
For endowment	123,272.52	905
Others	115,018.51	1,980
Totals	$3,020,600.43	50,364
Gifts to the American Medical Education Foundation		
No restriction	$ 984,786.83	44,155
Totals	$4,005,387.26	94,519

During the meeting the state chairmen expressed themselves by resolution that grave consideration should be given to a thorough study of the future problems of financing medical education. They asked that this be considered by the American Medical Association.

The Board of Directors of the American Medical Education Foundation wishes to bring to the attention of the House of Delegates the magnificent unselfish work that these state chairmen and their volunteer committees have devoted to this program during the past few years. Not only have these men given many hours to the work of the Foundation in their societies but they have made the outstanding effort that is required for fund-raising. The success of the A. M. E. F. program can be directly attributed to them.

A. M. E. F. Alumni Appeal Relations

Over the years the American Medical Education Foundation has explored methods by which it could coordinate its efforts with that of the appeals of the alumni groups of the individual schools. Several meetings have been held in the past to discuss the problems of duplicated appeals and to develop mutual cooperation between the Foundation and these groups.

On Feb. 11, 1958, the Board of Directors of the American Medical Education Foundation met with invited representatives from the school group. These representatives were alumni secretaries and fund directors who had been actively interested in the previous explorations and had worked with the American Alumni Council in an attempt to develop the best approach to the appeal to physicians for the support of their alma mater. In addition to the alumni secretaries from the following schools: Georgetown, University of Chicago, University of Michigan, St. Louis University, University of Kansas, Harvard University, and Tulane University were the Executive Director of the American Alumni Council, the Executive Director of the Association of American Medical Colleges, and two deans from medical schools.

The Board of Directors of A. M. E. F. discussed with this representative group the possibilities of closer cooperation and the areas of misunderstanding. It was agreed that further and continued discussions could erase many of these misunderstandings. At the same time a formal proposal for a coordinated program was also considered but no decision was reached as to its practicability.

Further explorations of this nature were made at the annual meeting of the American Alumni Council in June, 1958. This meeting held at Lake Placid, New York, was attended by many alumni directors who had not previously had the opportunity of presenting the viewpoints of their respective organizations. A. M. E. F. was represented by its Associate Executive Secretary, Mr. Jay Oliver, who used the meeting primarily to describe to the participants the activities and goals of the Foundation, with the result that a greater cooperation can be expected in the future.

Direct Contributions to the Schools from Physician Alumni

Since 1952, the American Medical Education Foundation has collected the names and contributions of those physicians who gave direct to the schools as well as listing the contributors who gave through A. M. E. F. During the first five years the Foundation specified that the schools report to it only the gifts they received without restrictions. During 1956 and 1957, the schools have reported all gifts to them made by physicians. Contained in this report is a table showing these totals for 1957 and also including the A. M. E. F. income which, of course, is completely unrestricted.

The Board of Directors of the American Medical Education Foundation feels that the efforts on behalf of A. M. E. F. are largely responsible for much of the increase in direct gifts from physicians to their schools.

The Woman's Auxiliary and A. M. E. F. for the Year 1957-1958

Again this year as in previous years, members of the Woman's Auxiliary have increased their gifts to America's medical schools through A. M. E. F. This increase during 1957-1958 amounted to nearly $13,000. Total Auxiliary contributions to the Foundation for 1957-1958 were $126,366.68, including a $5,000 gift from the National Auxiliary.

Great ingenuity and hard work by Auxiliary members were directly responsible for this marked progress during 1957-1958. County Auxiliary A. M. E. F. chairmen and their committees sponsored 94 different kinds of money-raising projects on behalf of A. M. E. F. Particularly successful were the use of Sympathy Cards and In Appreciation Cards which were used when the contributor wished to make a gift to the A. M. E. F. in honor of some individual. Several states were very successful also in the sale of Christmas Cards during the fall months of 1957. The Foundation is grateful to the 28 State *Auxiliaries* and the many counties who made gifts from their treasuries to the Foundation.

This year, for the first time, contributions were received from every constituent Auxiliary. Three-fourths of the states had an increase over last year's figures; Kentucky, Louisiana, Massachusetts and Mississippi more than doubled their previous year's contributions, and one state (Mississippi) tripled its last year's amount.

At the San Francisco Meeting, the American Medical Education Foundation's Award of Merit was presented to the 10 states with the highest per capita contribution. Certificates of Achievement were given to County Auxiliaries which had contributed over $1,000 to A. M. E. F. Nineteen counties received these certificates.

A new A. M. E. F.-Woman's Auxiliary table exhibit was designed for initial showing at the National Convention. This year also, a new portfolio of materials was sent to all state and county chairmen which, among its other contents, included a new Utility Card for use along with the Sympathy and In Appreciation Cards. For the first time this year an A. M. E. F. Christmas Card printing plate was designed for use by Auxiliaries. A general mailing to each Auxiliary member was sent out before the end of the Auxiliary year and brought an increased response over a similar mailing in previous years.

The Foundation wishes to thank the members of the Woman's Auxiliary for their active interest on behalf of A. M. E. F. We are extremely grateful for again being chosen as one of the priority projects of the Auxiliary for the coming year.

Program Development Activity

In the 12 months covered by this report our staff has visited nearly every state to aid the chairmen and the committees in developing, arranging, and building their programs and campaigns. Additional efforts have been made with many individual cities to aid and strengthen their organizations.

The A. M. E. F. office also prepared material for use by the state chairmen and their committees. Promotional folders and business reply envelopes were furnished to all the states as well as other tools for use in their campaigns. More than 700 portfolios for chairmen and committee members were distributed during 1957. A new portfolio for 1958 was given to the attendants at the state chairmen's meeting and was sent to all the workers who were not able to be at this meeting as well as to county chairmen and local committee members.

In the past the Foundation had printed an elaborate annual report that was sent to all contributors and others interested in the figures and the significant achievements of the previous year. In the fall of 1957, it was decided that this could be done more effectively by changing the format of the annual report so that, for the same printing and mailing costs, it could be sent to the entire profession. This was done with gratifying results. Though no direct request was made, business reply envelopes were included with the report and more than $50,000 in contributions were returned to the Foundation in these envelopes.

This mailing was followed up by the general mailing that has been sent each year describing the tax advantages of philanthropic giving. Again the response was gratifying.

Last fall, to coincide with these national mailings many of the states mailed appeals to their members with materials furnished by the national office. The Foundation is particularly grateful to the many local publications and bulletins that made exceptions to long-standing rules by including A. M. E. F. appeal material under the same cover as the publication. The effectiveness of this mailing appeal by the states was measured by 'keyed' return envelopes, that is, business reply envelopes of different colors —and the Foundation was surprised at the effectiveness of this type of appeal.

Again, this year, the A. M. E. F. as one of the co-sponsors of Medical Education Week, assisted in its planning and programing. The A. M. E. F. office also helped the Woman's Auxiliary in the preparation of materials and in their other activities that brought public attention to the work of the medical schools.

In Appreciation

The appreciation of the Directors of the American Medical Education Foundation is most gratefully expressed to all those who have, with such zealous attachment, aided the Foundation's aims since its inception.

A wholehearted tribute to Dr. Louis H. Bauer, our President for five years, is sincerely tendered. Dr. Bauer gave freely of his time and counsel on all occasions and it is indeed the good fortune of the Foundation that Dr. Bauer remains with us on the Board of Directors.

Special recognition is herewith acknowledged for the debt owed by the Foundation to the Women's Auxiliary and its members who, in recognizing the necessity, have organized so helpfully to alleviate the medical schools' unmet needs. In particular, we wish to thank Mrs. Paul C. Craig, Immediate Past President, and Mrs. Karl F. Ritter, National A. M. E. F. Chairman for 1957-1958, who is again assuming the Chairmanship for the coming year.

The Board of Directors wish to thank again the House of Delegates, Trustees and Officers of the American Medical Association for their generous gifts, their individual help, and for the special administrative and operational allocation which permits the Foundation to give the medical schools every dollar raised in their behalf.

Additional statements of appreciation are most deservedly due the Editor and Staff of The Journal for advertising space and thoughtful assistance in the preparation and publication of editorial material concerning the objectives and progressive development of the Foundation's programs. We wish to also thank the many state, county, and city journals and newsletters which have printed many perceptive articles *urging support for the nation's medical schools through the* machinery of the Foundation. *Modern Medicine* and *Medical Economics* also deserve our appreciation for the advertising space they so cheerfully contributed to the A. M. E. F. during the past year.

The Directors of the American Medical Education Foundation must repeat their gratitude to the state and county associations, particularly the officers of these organizations, their councils and their boards of trustees who have made A. M. E. F. efforts an important part of the program of their organizations; who have given portions of their meetings to our appeal; who have written editorials, mentioned its importance in their talks, and traveled miles to attend campaign dinners and meetings. Their work has been made particularly effective by the many society executive secretaries and staffs who have also earned our gratitude by putting forth the extra effort for A. M. E. F. given ordinarily for voluntary interests.

But in the last analysis the American Medical Education Foundation reserves its deepest appreciation for those 45,000 physicians who have understood the purpose of the Foundation and, by their gifts, have made possible the progressive success of the American Medical Education Foundation.

Respectfully submitted,

George F. Lull, M.D., President
F. J. L. Blasingame, M.D., Vice President
Edward L. Turner, M.D., Secretary-Treasurer
Donald G. Anderson, M.D.
Louis H. Bauer, M.D.
John W. Cline, M.D.
Lowell T. Coggeshall, M.D.
Gunnar Gundersen, M.D.
Edwin S. Hamilton, M.D.
Hugh H. Hussey, M.D.
Victor Johnson, M.D.
Leland S. McKittrick, M.D.
Walter B. Martin, M.D.
J. J. Moore, M.D.
Dwight H. Murray, M.D.
Louis M. Orr, M.D.
Cleon A. Nafe, M.D.
L. W. Larson, M.D. } ex officio
Julian P. Price, M.D.
Austin Smith, M.D.
John W. Hedback, Executive Secretary

THE INDUSTRIAL EXHIBITION

12th A. M. A. Clinical Meeting

Dec. 2-5, 1958 • Minneapolis Auditorium

The Industrial Exhibits at the Minneapolis Meeting will provide a quick review of the new developments in medicine.

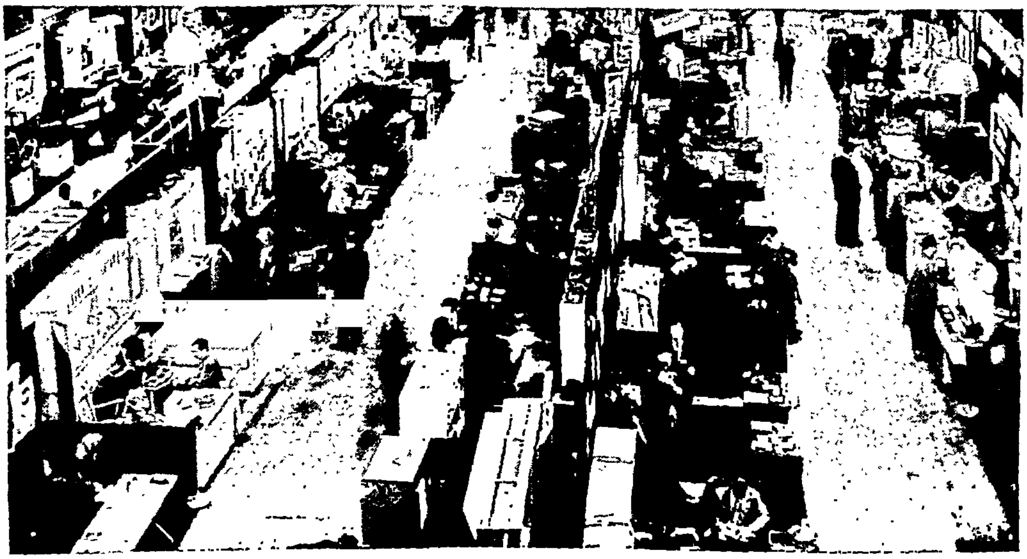
The visiting physician will have an excellent opportunity to examine new ideas and new methods—as well as to review familiar products and new applications that have been developed.

From Tuesday to Friday, Dec. 2 to 5, in Minneapolis, 130 industrial exhibitors will put the newest developments in the field of medicine on parade for you. With ease and at your convenience you may pick and choose what is useful in your practice. Well-trained representatives of each company will answer your most technical questions and help in every way to make your practice of medicine more effective and efficient.

The Industrial Exhibits will be open from 8:30 a. m. to 5:30 p. m. each day of the meeting, closing Friday at 12 noon. For your convenience all features of the Minneapolis meeting are under the same roof. The Scientific Exhibits, Industrial Exhibits, Clinical Discussions, Color Television, and Medical Motion Pictures are placed within a few hundred feet from one another.

We look forward to seeing you in Minneapolis and to your making full use of the values the Industrial Exhibits offer you.

ROBERT J. LYON
Advertising Manager and Director of Industrial Exhibition



INDUSTRIAL EXHIBITORS—12th CLINICAL MEETING

	Booth Numbers
Abbott Laboratories	E-9, E-10, E-11, E-12
American Medical Association Publications	D-3, D-5
American Medical Education Foundation	G-5
American Sterilizer Co.	A-11
Ames Company, Inc.	F-1
Arlington Medical Co.	L-6
Audio-Digest Foundation	G-8
Ayerst Laboratories	B-15
Blakiston Division—McGraw-Hill Book Company	B-14
Borcherdt Malt Extract Co.	K-7
Breck, John H., Inc.	E-3
Bristol-Myers Products Division	A-15
Burdick Corporation, The	A-5
Burns Cuboid Co.	C-6
Burroughs Wellcome & Co. (U.S.A.) Inc.	G-14
Burton, Parsons & Co.	B-11
Cameron Surgical Instruments Co.	F-5
Chicago Reference Book Co.	C-3
Chilean Iodine Educational Bureau, Inc.	B-13
Christian Medical Society	B-4
Ciba Pharmaceutical Products, Inc.	D-11, D-13, D-15
Coca-Cola Co., The	J-12
Coreco Research Corp.	B-5
Corn Products Sales Co.	F-3
Desitin Chemical Co.	L-11
Dietine Co., The	F-10
Doho Chemical Corp.	L-18
Eaton Laboratories	F-2, G-1
Eisele & Co.	B-6
Encyclopaedia Britannica, Inc.	J-9
Encyclopedia Americana	L-13
Evron Company, Inc., The	L-5
Fischer, H. G., & Co.	C-7
Fougera, E. & Co., Inc.	C-8
Fuller Pharmaceutical Co.	J-1
Geigy Pharmaceuticals, Division of Geigy Chemical Corp.	J-7
General Foods Corp.	J-3, J-4, J-5
Gerber Products Co.	F-12
Great Books of the Western World	J-2
Grune & Stratton, Inc.	K-8
Health Insurance Council	L-3
Heinz, H. J., Co.	C-5
Holland-Rantos Co., Inc.	E-4
Hollister-Stier Laboratories	A-8
Homemakers Products Division—Geo. A. Breon & Co.	F-9
Irwin, Neisler & Co.	L-15
Knoll Pharmaceutical Co.	F-8
Lea & Fibiger	G-13
Lederle Laboratories Division, American Cyanamid Co.	D-2, D-4, D-6
Lilly, Eli, and Co.	H-7, H-9, H-11
Lindquist, R. J., Co.	B-9
Lippincott, J. B., Co.	H-2
Lloyd Brothers, Inc.	D-7
Loma Linda Food Co.	F-7
Macmillan Co., The	K-10
Mahon, Thomas J., Inc.	L-8
Maico Company, Inc., The	B-7
Massachusetts Indemnity and Life Insurance Co.	F-4
McNeil Laboratories, Inc.	H-13
Mead Johnson & Co.	G-15
Medco Products Company, Inc.	C-10
Medical Dental Photo Co.	K-11
Medical Protective Co., The	F-6

	Booth Numbers
Merck Sharp & Dohme, Div. of Merck & Co., Inc.	E-14, E-16, F-13, F-15
Merrell, Wm. S. Co., The	G-11
Miles Reproducer Co., Inc.	L-10
Milex Professional Specialties	B-8
Miller Surgical Co.	G-7
Minnesota Mining and Manufacturing Co.	B-2
Modern Medicine	L-12, L-14
Mosby, C. V., Co., The	H-4
National Cash Register Co., The	L-2, L-4
National Drug Co., The	E-8, A-3
Nordson Pharmaceutical Laboratories, Inc.	H-14
Organon, Inc.	G-10
Ortho Pharmaceutical Corp.	G-2, G-4, G-6
Pan American Groves	J-10
Parke, Davis and Co.	G-16
Pepsi-Cola Co.	L-7, L-9
Personal Products Co.	L-22
Pet Milk Co.	A-14
Pfizer Laboratories	B-16
Pharmacia Laboratories, Inc.	C-4
Pitman-Moore Co.	A-10
Plough, Inc.	A-7
Postgraduate Medicine	A-12
Prior, W. F., Co., Inc.	J-8
Procter & Gamble Co., The	D-12
Purdue Frederick Co.	H-16
Pyramid Rubber Co., The	J-11
Ralston Purina Co.	G-3
Riker Laboratories, Inc.	D-14
Robins, A. H., Co., Inc.	E-1, E-2
Roche Laboratories, Div. of Hoffmann-La Roche, Inc.	B-1
Roerig, J. B., & Co.	H-12
Rorer, William H., Inc.	C-12
Ross Laboratories	K-12
Sanborn Co.	F-11
Sandoz Pharmaceuticals	E-6
Saunders, W. B., Co.	C-16
SchenLabs Pharmaceuticals, Inc.	H-5
Schering Corp.	H-6, H-8, H-10
Schmid, Julius, Inc.	D-10
Scholl Mfg. Co., Inc., The	C-9
Searle, G. D., & Co.	C-2, D-1
Seven-Up Co., The	A-17, A-19
Simmons Co.	A-6
Smith-Dorsey, Div. of the Wander Co.	F-14
Smith, Kline & French Laboratories	A-1, J-6
Squibb, E. R., & Sons	C-11, C-13, C-15, L-16
State Medical Journal Advertising Bureau, Inc.	B-3
Strasenburgh, R. J., Co.	D-8
Stuart Co., The	G-12
Swift & Co.	G-9
Syntex Chemical Co., Inc.	L-20
Travenol Laboratories, Inc.	A-4
U. S. Vitamin Corp.	C-14
Walgreen Co.	C-1
Wallace Laboratories	L-1, F-16
Walton Laboratories, Inc.	B-10, B-12
Wampole Laboratories	A-13
Warner-Chilcott Laboratories	E-5, E-7
Westwood Pharmaceuticals, Div. of Foster-Milburn Co.	E-13
White Laboratories, Inc.	H-6
Winthrop Laboratories	H-3
World Medical Association, The	K-9
Wyeth Laboratories	D-16, E-15
Young, F. E., & Co.	A-9
Zimmer Manufacturing Co.	D-9

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

85th Congress

The first session of the 85th Congress convened Jan. 3, 1957. The second session adjourned in the early morning hours of Aug. 24, 1958. During these two sessions, 20,604 various legislative measures were introduced. All of these were screened for possible medical significance, and 704 were analyzed, reported and followed by the Washington Office of the American Medical Association. Of these, 10 bills were enacted into law during the first session, and 16 were enacted into law during the second session, a total of 26 out of 704.

As a comparison to show the increased interest and activity of Congress in matters pertaining to medicine, the records of Congress for the last eight years are tabulated below.

Congress	Bills Analyzed, No.	Bills Enacted into Law, No.
82nd	250	11
83rd	407	24
84th	571	25
85th	704	26

The 692 bills reported in this section on Federal Medical Legislation in various issues of The Journal during 1957 and 1958 were broadly grouped as shown in the tabulation below. (The Journal, 165:1702-1705 [Nov. 30] 1957, carries a summarization of the first session of the 85th Congress.)

	First Session	Second Session
Social security	68	52
Rehabilitation and problems of aged	66	28
Tax deductions and retirement plans	68	32
Veterans legislation	44	25
Labor, welfare, and benefit plans	26	15
Civil defense	22	3
Hospitals and other medical facilities	17	18
Military and defense measures	14	10
Federal employees	12	3
Drugs, drug addiction, and alcoholism	12	2
Medical and related education	12	13
Mosquito research and control	11	0
Food and chemical additives	10	3
Treaties and international agreements	7	0
Voluntary health measures	7	0
Pollution of air and water	4	10
Nursing	3	0
Antirecession	0	26
Miscellaneous	43	6
Total	446	246

Social Security

In this Congress, as in previous Congresses, the greatest number of bills introduced, 120, pertained to social security. Congress again amended the Social Security Act, as it has done every election year since 1950. H. R. 13549 became Public Law 85-840 on Aug. 28 in response to demands that benefits keep pace with the cost of living. To finance the liberalizations, the law increases the taxable base from $4,200 to $4,800 of gross employment earnings and raises the tax in 1959 from 2.25 to 2.5% for the employer and employee and from 3.375 to 3.75% for the self-employed. Additional increases are scheduled for 1960, 1963, 1966, and 1969. By 1969, the self-employed will be paying 6.75% of earnings up to $4,800, or $324 per year. Congress also provided an additional 197 million dollars for public assistance recipients and gave states greater flexibility in use of federal funds for financing the medical care of the aged, blind, the disabled, and dependent children.

Congress left the door ajar for consideration, by the next Congress, of bills using the social security system to provide hospital and medical care for OASDI beneficiaries. An articulate minority wanted this enacted this year via the proposal of Rep. Aime Forand (D., R. I.), the Forand Bill, but Congress decided against it. However, the House Ways and Means Committee directed the administration to make a study and report by next February on the various possibilities for financing medical care for the aged, with particular emphasis on the practicability of increasing OASDI taxes and using the money to purchase health insurance on retirements. The A. M. A. took a strong stand against using the social security system to provide medical care, viewing it as a beginning of national compulsory health insurance.

Next year undoubtedly will see the reintroduction of the Forand Bill and similar types of legislation both in the House and Senate.

Rehabilitation and Problems of Aged

Of 94 measures introduced affecting rehabilitation and the problems of the aged, only 5 became law.

Disability Freeze Extension, Public Law 85-109 (H. R. 6191).—Under this law, a new deadline of July 1, 1958, was established for disabled persons covered under social security to apply for full retroactivity under the disability freeze passed in 1954. Applications filed by July, 1958, would allow work-

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From the Washington Office of the American Medical Association.

ers to count the full period of disability provided they were eligible for disability benefits at the time the disability was incurred. After next July 1, any period of disability established for a worker cannot begin earlier than one year before the application is filed.

Vendor Medical Payments, Public Law 85-110 (H. R. 7238).—This law is intended to resolve some problems arising out of the social security amendments of 1956 with particular reference to vendor medical payments for public assistance recipients. Under Public Law 110, states are given the choice of either (*a*) using federal funds for vendor medical payments within the $60 a month per recipient maximum or (*b*) establishing a single medical vendor payment financed by federal funds which were set by a 1956 law at one-half of $6 a month per adult and one-half of $3 per child to be matched by states. States also can continue to make direct payments to recipients for medical and subsistence expenses. This law became obsolete with enactment of the 1958 amendments to social security.

Vocational Rehabilitation Traineeships, Public Law 85-198 (S. 1971).—This measure extends from two to three years the maximum period of time over which the federal government can pay for partial financing of traineeships in physical medicine and rehabilitation. It amends the Vocational Rehabilitation Act which was expanded in the 84th Congress.

Vocational Rehabilitation Planning, Public Law 85-213 (H. R. 8429).—This amends the Vocational Rehabilitation Act by extending the time federal funds may be used for planning, preparing, and initiating expansion of programs in the states. Congress was asked to act when the July 1, 1959, deadline approached with considerable unexpended funds on hand.

White House Conference on Aging, Public Law 85-908 (H. R. 9822).—The President is instructed to call a White House Conference on Aging in January, 1961, by a measure passed late in the second session. This national meeting will bring together federal, state, and local leaders working in the field of aging. Their objective is to arrive at facts and recommendations on the utilization of skills, experiences and energies, and the improvement of the conditions of older people. A final report would be submitted to the President within 90 days after the conference. A series of state-organized meetings would precede the 1961 conference. To help the states finance these meetings, the law provides up to $15,000 a state with a minimum of $5,000. These figures, reduced from the original $50,000 per state, were used with the anticipation that states would also participate substantially in the financing. The A. M. A. gave this legislation its full support; author of the bill was Rep. John Fogarty (D., R. I.).

Tax Deductions and Retirement Plans

Of 63 measures for proposed tax deductions, 43 would give varying degrees of tax relief for expenses incurred in obtaining higher education for the taxpayer, his spouse, or his dependents; 20 bills would have allowed an increased deduction for medical expenses. No hearings were held nor action taken on any of these bills.

Of 37 measures that were introduced pertaining to retirement, the two most important to physicians were Senator Sparkman's bill S. 3194 which would have given tax relief to small business. Physicians would have qualified as small businesses. The bill which contained provisions for a retirement plan along the lines of the Keogh bill died in the Senate Finance Committee. H. R. 10, more commonly called the Jenkins-Keogh Bill, passed the House on July 29 with scarcely a voice raised in objection and was sent to Senate. This long-sought measure would allow self-employed professional or business men to set aside 10% of net earnings each year to an annual maximum of $2,500, with the tax on that amount deferred until retirement. As many as 7 million persons would benefit. The fight for passage has been spearheaded by the American Thrift Assembly, of which the A. M. A. is a member.

Representative Keogh (D., N. Y.) led the debate for passage. He stressed the bill's voluntary nature and the righting of a tax inequity. (Employers now may set aside tax free sums for employees in company retirement plans.) More than a score of Congressmen joined in urging passage; they included Representative Reed (R., N. Y.), ranking minority member of the House Ways and Means Committee and early advocate of a similar bill.

This observation on the bill's merits came from Representative Dennison (R., Ohio): "Self-employed persons generally assume large personal risks. Those in the professions . . . have a tremendous investment in time and money before entering into actual performance of their calling. They must in their productive years set aside sufficient funds to take care of themselves in the years when their own human energy and resources have been depleted. It is not unreasonable or unfair to give them the same tax benefit that employed persons enjoy."

Representative Rogers (D., Fla.) pointed out: "Company officials and employees receive benefits from retirement plans which are not counted as income until the money is actually drawn out, and the company counts their contributions to the funds as business expenses at the time they pay into the fund."

The Senate, in a 52-32 vote on a technical issue, on Aug. 12 sidetracked the Keogh bill to help the self-employed set up retirement plans. Subsequently, it was learned that Senate policy committees of both parties decided to oppose the bill at this time because of the loss of tax revenue it would cause.

However, backers of the bill will continue their efforts for favorable Senate consideration in view of the overwhelming vote for it in the House. Also, they are encouraged that 32 senators voted for the measure despite the unfavorable legislative situation and the attitude of party leaders. Many supporters are convinced that the progress made this year will pave the way for enactment in the new Congress when it meets in January.

The Senate vote developed this way: When a bill for correcting and changing many parts of the tax law came up for debate, Sen. Charles E. Potter (R., Mich.) offered the Keogh bill as an amendment. Sen. Russell Long (D., La.) and several others took the floor against the Potter amendment, complaining of the tax loss involved, of the fact it was discriminatory, and that the Senate Finance Committee had not studied the legislation.

Senator Wayne Morse (D., Ore.) then moved the adoption of a substitute for the Keogh bill that would cover all taxpayers, but with a lower set-aside limit ($1,000 annually instead of the Keogh bill's $2,500). The Morse bill would result in a tax loss of as much as 1.9 billion dollars annually, in contrast to the Keogh bill's 365 million (a treasury estimate that Keogh supporters say is too high). Morse argued that the Keogh bill was discriminatory and that all taxpayers should have the benefit or none should have it.

At this point Sen. Robert S. Kerr (D., Okla.) challenged the motions as not germane to the bill actually before the Senate. The ruling was that both were germane, whereupon Senator Kerr asked the Senate to reverse the chair's ruling. Thus the senators were left with a choice of reasons for their votes. They could vote nay because they were (*a*) against the Keogh bill, (*b*) against the Morse bill, or (*c*) did not believe either bill should be made a part of the legislation under consideration but should be handled separately and be considered by the Senate Finance Committee.

Time ran out and the bill died in the Committee. New efforts to get the measure passed in the 86th Congress are being planned.

Veterans Legislation

Of 69 measures introduced pertaining to veterans and the Veterans Administration, 3 became law. One on codification of veterans laws, Public Law 85-56 (H. R. 53), without making any substantiative changes in existing law, brought into a single code all veterans benefit laws, dealing with compensation, pension, hospitalization, and burial benefits. Some of the laws date back 30 years.

H. R. 9700 also became Public Law 85-857 and would further consolidate into one act all the laws administered by the Veterans Administration, including Public Law 85-56 enacted in the first session.

The other pertaining to pay for veterans administration physicians became Public Law 85-462 (S. 734) giving a salary increase to VA physicians. A provision that would have given VA optometrists the same professional status as physicians and dentists was dropped from the measure.

Late in the session as a windup to lengthy hearings on veterans entitlement to VA hospitalization, the House Veterans Affairs Committee reported out an omnibus hospitalization bill (H. R. 10028). The measure had as its major objective the opening of additional beds which the committee maintains the Budget Bureau is holding back on. It was reported too late for final action and died with the adjournment of Congress. The A. M. A. testified in favor of a clear spelling out by Congress of veterans entitlement to federal care.

H. R. 413, on presumption of service-connection for leprosy, and H. R. 1143, on presumption of service-connection for arthritis, psychoses, or multiple sclerosis, both passed the House but died in the Senate Committee. H. R. 1264, on pulmonary tuberculosis, declaring veterans suffering from active pulmonary tuberculosis to be permanently and totally disabled for pension purposes while hospitalized, passed the House but also died in the Senate Finance Committee with the adjournment of Congress.

Labor, Welfare, and Benefit Plans

Forty-one measures were introduced on labor, welfare, and benefit plans; most were an outgrowth of the hearings by the Senate Committee investigating the labor unions. Only one passed (S. 2888) to become Public Law 85-836 and would correct abuses in health and welfare plans. Congress, after considerable debate, voted the measure requiring both labor and management health and welfare plans to make annual financial reports to the Secretary of Labor. It exempts plans with fewer than 25 members. Fines as high as $10,000 or five years imprisonment are provided for falsification of reports.

President Eisenhower signed into law this bill providing a limited amount of publicity for union-management welfare funds (medical plans included), but at the same time he criticized the legislation as too weak and said it would be ineffective unless tightened up by the next Congress. Under this law the funds are required to register with the Secretary of Labor and make annual reports, which will be filed with the secretary and made available to any beneficiaries. In a statement Mr. Eisenhower declared:

1. The act requires only summary statements of many important aspects, "making it possible to conceal many abuses."

2. No agency of government is authorized to provide uniform interpretation of the bill's technical terms, and "the chaos that will result is obvious."

Failure to designate an agency plan administrators can consult for reliable and authentic opinions, and for report forms, "enables corrupt administrators to hide abuses, blocks beneficiaries from receiving adequate information, and subjects administrators to uncertainties in compliance."

3. The bill's reliance solely upon individual employees to compel compliance through court proceeding is most unrealistic. "Employee suits alone are inadequate as enforcements remedies. Unaided by governmental authority to conduct investigations and institute litigation, individual employees, without financial resources or legal experience, can be easily intimidated, made subject to reprisals and discouraged from taking effective action."

4. The bill fails to give the Secretary of Labor either investigatory or enforcement powers with respect to reports filed with him.

5. There is no provision for dealing directly with "the most flagrant abuses," such as embezzlement and kickbacks, once they are uncovered.

In conclusion the President said: "Not only did the Congress fail to appropriate any money to administer the custodial and other functions of the secretary under the bill, but the annual financial reports will not have to be furnished until as late as May, if the plans are on a calendar year basis or for a period of 120 days after the completion of the fiscal year if they operate on a fiscal year basis."

Civil Defense

Twenty-five measures pertaining to civil defense were introduced. Of these, H. R. 7576 pertaining to civil defense grants became Public Law 85-606 and would bolster sagging state civil defense programs. Congress voted grants to the states for purchase of radiological instruments, personal equipment for state and local civil defense workers and for administrative and personnel expenses. Amounts for the first category would not exceed 35 million dollars; for the second category, not more than 2 million; and for the third, not over 25 million.

The administration's Reorganization Plan no. 1 of 1958 submitted by the President for merging the Office of Defense Mobilization and Federal Civil Defense Administration on July 1 into the Office of Civilian and Defense Mobilization passed its final hurdle. The Senate Government Operations Committee on June 16 decided not to recommend a disapproving resolution sponsored by Senator Potter (R., Mich.). Under the Reorganization Act, any reorganizing proposal of the President automatically goes into effect after 60 days of issuance of details unless either House or Senate adopted a disapproving resolution. The House government operations subcommittee which looked into the proposal did not object but did raise some basic questions. It observed: "The plain facts of life also suggest that civil defense is in so low a state that nothing could make it worse and something could make it better."

Late in Congress a measure was introduced and passed changing the name to the Office of Defense and Civilian Mobilization.

Hospital and Other Medical Facilities

Thirty-five measures affecting hospital and other medical facilities were introduced. Of these, three were enacted into law. H. R. 8053 pertaining to Indian and Non-Indian Hospitals became Public Law 85-151 during the first session. At the urging of some Western-state members of Congress, P. L. 151 was enacted to authorize federal funds to help build nonprofit or public hospitals and diagnostic or treatment centers on or near Indian reservations; the extent of federal contribution will be determined by the percentage of care given eligible Indians. The facility sponsors have to agree to care for both Indians and non-Indians.

During the second session two amendments were added to the Hill-Burton program. H. R. 12628 became Public Law 85-664, which provided a five-year extension of the Hill-Burton hospital constructions program. In a separate action, Congress further amended the act by passing H. R. 12694 to become Public Law 85-589 to permit, for the first time, Hill-Burton loans at virtually the same rate of interest the government pays for its own borrowing. Under the loan act, an applicant would have to comply with all H-B regulations the same as regular H-B applicants. The A. M. A. testified in support of the Hill-Burton extension.

An added note is the appointment in July of Dr. Jack C. Haldeman to direct the government's multimillion-dollar Hill-Burton hospital construction program. He helped organize the program more than 12 years ago. He has been serving as deputy chief of the Public Health Service division of hospital and medical facilities. When Hill-Burton was launched in 1946, Dr. Haldeman was executive officer and had an important part in developing regulations and operating procedures and organizing the field staff. Dr. Haldeman succeeds Dr. Vane M. Hoge who has been appointed executive director of the Hospital Planning Council of Chicago.

Efforts to provide new capital for proprietary and nonproprietary nursing homes through FHA-type mortgage loan guarantees failed of passage. The provision, strongly endorsed by the A. M. A., was part of an Omnibus Housing Bill that failed to pass the House under suspension of rules, after Senate approval of S. 4035.

Military and Defense Matters

Twenty-four measures affecting the Department of Defense were introduced; of these, five became laws. H. R. 6548, the doctor draft extension bill, was enacted during the first session to become Public Law 85-62. Because the doctor draft bill was set to expire July 1, 1957, this was one of the first health measures passed by the 85th Congress. It gives Selective Service authority, until July 1, 1959 (when both this amendment and the regular draft expire), to call certain physicians up to age 35 for military service. Only those under age 35 with obligations under the regular draft and who have been deferred for any reason may be called. The Defense Department, meanwhile, says it is getting enough medical school graduates as reservists to preclude use of the new law at this time.

H. R. 2460, the military nurses incentives bill, passed during the first session to become Public Law 85-155. This was in line with earlier efforts to make careers in the military more attractive. Congress passed this law improving career prospects for military nurses by making more and higher ranks available.

H. R. 11470, the general pay raise bill for the military, became Public Law 85-422 and included the increase for physicians in the services. The law also retained the incentive pay schedule for doctors in uniform which has been in effect since 1947.

The Department of Defense Reorganization Plan, H. R. 12541, became Public Law 85-599. At the prodding of the House Armed Services Committee, the Defense Department is finally reorganizing. The number of Assistant Secretaries of Defense, which Congress felt had grown too large, was trimmed back by one. It was felt that the affected post in all likelihood would be that of Assistant Secretary for Health and Medical Affairs, which would be downgraded to that of Special Assistant. The A. M. A. fought hard to have the act make clear that this post would be saved.

As a result, early in September Defense Secretary Neil McElroy informed Dr. Frank S. Berry, Assistant Secretary of Defense for Health and Medical Affairs, that the latter's post would not be abolished under the forthcoming reorganization of the Defense Department. The decision has the concurrence of the President.

Of great importance to many physicians and military dependents was H. R. 12738 on Medicare appropriations, which became Public Law 85-724. Congress took a long hard look at the Medicare program, now nearing its second anniversary, and decided that the civilian phase of the program had to be curtailed in favor of greater use of military facilities. The House first trimmed $10,200,000 from an admittedly slim budget of $70,200,000 and then wrote into the Defense Department appropriation a section that would have prevented the services from asking for any supplemental appropriation for the entire fiscal year or using other funds. When it reached the Senate, Medicare and Defense officials joined with the American Medical Association and others in a plea for restoration of funds and elimination of the destructive section. This was accomplished through an amendment sponsored by Senator Knowland (R., Calif.). In the ensuing conference, language was written in a report which, while not having the full force of law, nonetheless directed the military to start cutting back on some aspects of civilian Medicare. To this end, the Office for Dependents Medical Care announced new restrictions effective this fall. They are aimed at higher military facilities utilization, such as requiring dependents living with sponsors to use military resources unless they are not available.

The latest information is that Medicare officials, after another look at the account books, see the possibility of a shutdown of the civilian phase of the program early in 1959. The reason is relatively simple; the 72 million dollars appropriated by Congress for the fiscal year will not be adequate. And Senate and House conferees agreed that the armed forces should not spend more than that amount. Major Gen. Paul I. Robinson, who retired this week as head of the Office for Dependents Medical Care, says one solution lies in Congress changing its mind and voting more funds after it convenes Jan. 7. Another possibility is for the Defense Department to use other funds to make up its deficit and then explain to Congress next session why its instructions could not be followed.

ODMC, in further elaborating on its new restrictions on Medicare use in civilian facilities (brought on by the belt-tightening in Congress), said the following surgical procedures would be allowed: (1) bona fide surgical emergencies which cannot be handled on an out-patient basis, e. g., perforated ulcer and intestinal obstruction; (2) acute surgical conditions in which patient is in clinical need of hospitalization without delay, e.g., acute appendicitis, strangulated hernia, and pelvic abscess; and (3) injuries of such clinical severity as to require hospitalization but only for treatment of the acute phase. Elective surgery is ruled out, including interval appendectomies, cosmetic surgery, tonsillectomies, routine hysterectomy, and uncomplicated hernias.

Federal Employees

In addition to the 12 measures on federal employees introduced the first session, 10 of which were devoted to contributory health insurance, 3 more were introduced the second session. No hearings were held on these measures.

Drugs, Drug Addiction, and Alcoholism

A total of 14 measures on drugs, drug addiction, and alcoholism were introduced. Ten dealt with various aspects of control and treatment of drug addiction, three were related to biological products and one was to establish a medical advisory committee on alcoholism. No action was taken on any of these bills.

Medical and Related Education

Twenty-five measures were introduced on medical and related education. Of these, four became law.

H. R. 6287 on the fiscal 1958 budget for the Department of Health, Education, and Welfare (which starts July 1, 1957) became Public Law 85-67. Congress voted $2,503,130,381 for all HEW programs.

The National Institutes of Health received about 21 million dollars more than the House allowed. This was agreed on after two meetings of Senate and House conferees on the Department of Health, Education, and Welfare budget. The Senate had voted 32 million dollars more than the House total of 220 million for all NIH operations, including laboratory facilities construction. But when the two sides got together, they were able to pare down Senate figures some 11 million dollars.

In another section of the budget, higher Senate amounts for two Public Health Service items remained untouched. These were grants to states for general health activities and funds for communicable diseases. Rounded off figures approved by the conferees for the various institutes in millions of dollars are tabulated below.

Institute	Millions of Dollars	
	1958	1959
General research	14.0	29.0
National cancer	56.4	75.0
Mental health	39.2	52.0
National heart	35.9	45.6
Arthritis and metabolic diseases	20.4	24.0
Neurology and blindness	21.4	29.0

H. R. 11645 pertained to the budget for the Department of Health, Education, and Welfare for the fiscal year 1959 (starting July 1, 1958) became Public Law 85-580. In response to appeals from a number of sources, the 85th Congress set a new high in money voted for the Department of Health, Education, and Welfare, particularly for the U. S. Public Health Service. The latter now is spending at the rate of close to three quarters of a billion dollars a year. Last year the PHS received from Congress approximately 562 million dollars; this year's total is $745,747,000. Members of Congress find it difficult to vote against more funds for medical research and a myriad of other health programs, once health-oriented House and Senate committees have agreed on certain figures for the ensuing year. Research money for the seven institutes was increased nearly 40% over last year, while the Hill-Burton hospital construction program received a boost of close to 55%.

Senate-House conferees agreed on a budget for the Department of Health, Education, and Welfare, including record high appropriations for the Institutes of Health.

A total of 294 million dollars for the Institutes was appropriated, or 75% more than the House had proposed; 186 million for the Hill-Burton hospital construction program in contrast to 121 million proposed by the House (diagnostic-treatment centers and chronic disease hospitals were cut from the Senate's 20 million to 7.5 million each, but Senate figures were accepted for rehabilitation centers and nursing homes—10 million each); 6.9 million to build a National Library of Medicine and 9.6 million to build an office building at NIH. Rounded off figures approved for the various institutes (in millions of dollars) are general research 29, cancer 75, mental health 52, heart disease 45.6, dental research 7.4, arthritis 31, allergy and infectious diseases 24, and neurology and blindness 29.

H. R. 11414 on Public Health School Grants became Public Law 85-544. Eleven schools of public health promised a total of 1 million dollars annually in federal grants to assist them in professional training, specialized consultative services, and technical assistance with the states. The final act was simply an authorization. Efforts were made late in the session by the Senate to add 1 million dollars to a supplemental appropriation for a number of agencies. This item was knocked out in conference, which means that funds will not be available until the next Congress acts.

H. R. 12876 on Research Facilities Extension became Public Law 85-777. Two years ago Congress voted a new program of grants to help medical schools and similar facilities doing research in various crippling and killing diseases to construct laboratories and similar buildings or to remodel existing structures. The program was to run for three years, with an annual appropriation of 30 million dollars. With a backlog of applications, the administration sought an extension for another three years. It also asked for a clarification of "multipurpose" facilities. In the process, the bill was amended in committee so that money available would have been available for both research and teaching facilities. This back-door approach to medical school aid later was dropped by the committee because it was felt that it would jeopardize passage of the simple extension. This 30 million dollars per year program will continue for three additional years.

Bills to authorize one-time grants for new and existing medical schools to build classrooms were pending in both House and Senate at adjournment. Extensive hearings were held by the House Interstate health subcommittee. No bill was reported to the floor because of (1) concern over the segregation issue, (2) a question of whether the states have exhausted all resources, and (3) a reluctance of some committee members to spend the money now. The A. M. A. supported one-time grants in its testimony.

Mosquito Research and Control

Eleven bills to provide funds for research and demonstration projects for control of mosquitoes were introduced in first session of Congress, but no hearings were held and no further action was taken.

Chemical Additives

Thirteen measures pertaining to chemical additives used in food and medicine were introduced; of these, one, H. R. 13254, became Public Law 85-929.

In an 11th hour action, the Senate passed a House-approved bill on the last day of the session which prohibits use of chemical additives in foods until their pretesting has been approved by the Food and Drug Administration. Provisions are made for appeals to federal decisions.

Treaties and International Agreements

No new measures were introduced the second session. Of the six bills introduced during the first session, hearings were held only in the Senate. These bills would have limited the effect of treaties or international agreements on state and federal laws.

Voluntary Health Insurance

No new measures on voluntary health insurance were introduced this session. On seven which had been previously introduced, no action was taken.

Air and Water Pollution

Fourteen measures on pollution of air and water were introduced—4 the first session and 10 the second. These later 10 measures dealt primarily with increased federal grants for construction of facilities under the Water Pollution Control Act.

Hearings were held on H. R. 13420 and the bill was favorably reported by the House committee. No further action was taken.

Nursing

No new measures on nursing were introduced this session in addition to the three introduced the first session. No action was taken in either session.

Antirecession

With the advent of a recession during the fall of 1957, Congress came back to the second session in January and introduced some 26 measures designed to combat the recession. The measures were primarily based on the assumption that spending more government money would stem the tide of the decline in business. Many other bills included under the headings of Hospitals and Other Medical Facilities and Medical and Related Education also had increased appropriations and features designed to combat the recession.

Of these 26 measures, 6 would have extended the length of time for unemployment compensation paid by the states, and 20 would have established an Emergency Community Facilities and Public Works Program. One of these, S. 3497, would have provided for low-interest loans to states and communities for a wide range of public works, including construction of community hospitals. After the Senate had passed this measure, the House refused to consider it.

Miscellaneous

Of the 49 miscellaneous bills introduced, 43 were introduced the first session. Of these, one became Public Law 85-172 providing for compulsory federal inspection of poultry moved in interstate commerce. The responsibility for enforcement is lodged with the Department of Agriculture.

Of the six bills introduced the second session, one would have prohibited the treating of water for human consumption with fluoride compounds by any officer of the United States, the District of Columbia, or Territories. Three dealt with the disposal of certain federal surplus property to public health agencies and states. One was an antivivisection measure prohibiting any person from transporting in interstate commerce, in the District of Columbia or Territories, cats or dogs for vivisection or medical or scientific experimentation. Another would have discontinued federal grants for vocational education and waste treatment facilities and reduced the federal excise tax on local telephone service to assist the states in assuming financial responsibility for their programs.

H. R. 4275 would have established a Civil Air Surgeon with broad authority in civilian air safety, but it failed to pass. But with creation of the Federal Aviation Agency, by Public Law 85-726 (S. 3880), administration assurances have been given that the needs of aviation medicine will be considered in setting up the new agency. The A. M. A. was a strong supporter of the idea of a Civil Air Surgeon.

COUNCIL ON NATIONAL DEFENSE

The Joint Commission on Accreditation of Hospitals requires every hospital to have a written disaster plan known to all personnel and rehearsed at least twice yearly. Hospitals have not encountered too much difficulty in preparing their written disaster plans. However, testing the adequacy of the paper plans is another matter. Because such tests would interfere with, or conceivably disrupt, their day to day functions, few hospitals have undertaken realistic tests of disaster plans.

In recognition of the need for making medical civil defense a part of the day-to-day activities, a guide for testing and rehearsal of hospital disaster plans was prepared for the Detroit Area Hospital Council to be distributed to hospitals. The following paper, based on this guide or standards, was presented by Max L. Lichter, M.D., at the Sixth National Medical Civil Defense Conference in San Francisco on June 21, 1958. The Council is hopeful that this information will be of interest and assistance to hospitals and their staffs in making medical civil defense effective. Copies of the pamphlet "Standards-Testing and Rehearsal of Hospital Disaster Plans" may be obtained by writing Mr. Jacques Cousin, Director, Greater Detroit Area Hospital Council, Inc., 1084 Penobscot Building, Detroit 26. Frank W. Barton, *Secretary.*

A YARDSTICK FOR TESTING HOSPITAL PLANS FOR DISASTER

Max L. Lichter, M.D.
and
Jacques Cousin, M.A., M.S., Detroit

Natural disasters, which in recent years have seemed to occur more frequently, have brought about an awareness by hospitals of the need to develop plans to handle large numbers of casualties. The necessity for this type of planning has been further emphasized by a growing reliance by the public that the hospital is a part of the normal security services available in the community, along with the police, fire, and health departments and the American Red Cross. The public expects hospitals to function efficiently in emergency situations. This function has been recognized by the American Hospital Association and the American Medical Association, which have urged that hospitals appoint disaster committees to develop adequate and workable disaster plans. The importance of this function has been further pointed up by the Joint Commission on Accreditation stipulating that accredited institutions must have a written disaster plan which must be tested periodically.

In this newly emphasized activity, now so important to hospitals, it is natural that many questions will arise. In this article we wish to present what we think are adequate answers concerning two aspects of this problem.

If one assumes that a disaster plan has been developed and that all staff members and hospital personnel are familiar with it and that each knows his assignment and duties, two questions usually present themselves: 1. How can the effectiveness of the plan be determined? 2. How can awareness of and familiarity with the plan be maintained?

It has been our experience that these important questions are answered only by periodic rehearsal or testing. Quite naturally this in turn raises another query: How do you go about testing the plan? To answer this an outline for rehearsal and testing of disaster plans was developed in Detroit. This has proved effective as a guide.

For our purposes a rehearsal is defined as practice, implying staging and prior knowledge on the part of all participants. A test, on the other hand, implies an element of surprise, a deliberate attempt to try the plan. While a rehearsal is the easier and more convenient educational device, a test provides a more valid and interesting result. Whether a plan is to be rehearsed or tested is a matter of choice for the hospital, since the purpose of both is the same, namely: (1) to educate hospital personnel in their role in disaster and (2) to determine the adequacy of the mechanical provisions in the planning.

In either event, rehearsal or testing, certain considerations are common to both although not necessarily to the same degree. These are (1) the parts of the plan which are basic to an adequate testing program; (2) those portions which might be tested

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Chairman of the Committee on National Defense, Michigan State Medical Society, and a member of the Committee on Civil Defense, American Medical Association (Dr. Lichter); Executive Director and Secretary of the Greater Detroit Area Hospital Council, Inc., and a member of the Committee on National Defense, Michigan State Medical Society (Mr. Cousin).

Read before the Sixth Annual National Medical Civil Defense Conference in San Francisco on June 21, 1958.

optionally; and (3) those areas which, because of their routine or ancillary character, need not be included.

Now let us take up briefly each of these individual points. Point 1 deals with those parts which are basic to an adequate testing program. We consider the following parts to be the most vital segments of a disaster plan: (1) the ambulatory casualty post, (2) the ambulance area, (3) admissions and triage, (4) record making, and (5) emergency communications, which includes both alert procedures and disaster operation communications. These activities are the first to be triggered by disaster. The proper functioning of these areas therefore is essential to the successful operation of the entire plan.

Point 2 deals with those areas of optional consideration in a testing program which can be enumerated as follows: x-ray department, supply, information service, volunteer personnel service, and traffic control. Of these the only one not part of usual hospital operations is the volunteer personnel service. The presence of volunteers in large number can create serious traffic control and communications problems. Certainly adequate planning should be made for receiving and assigning of volunteers in accordance with their experience and capabilities.

Point 3 deals with those areas which in our opinion need not be included in a testing program because of their inherent routine characteristics. These are the laundry, engineering, housekeeping, and dietary departments. Granted, in actual disaster operation these departments do have a most important role. They could be expected to function under an added load. Beyond being involved in planning and rehearsal they do not lend themselves to testing.

Extent of Test

The extent of the test is, of course, a major consideration. Extent depends on the status of planning and the inclination of the hospital's administration and medical staff. The rehearsal or the test, as the case may be, can range from a paper exercise to the surprise unloading of simulated casualties. In a rehearsal the department heads and key personnel having responsibility relate and discuss solutions to a hypothetical problem. As a matter of fact, this should always be the first phase in any testing program.

Another method is to formulate a hypothetical situation. Sealed envelopes, to be opened at stated times, would contain information concerning the problem and changes in the situation which might be conceivably encountered in actual disaster operations. Each department head would then be expected to submit the course of action he would have taken to cope with the problem as it developed. The consideration of these reports would make an excellent subject for a critique.

A third method would be a walk-through exercise involving assigned personnel. A situation is posed to develop familiarity with assigned duties. Each of the segments of the plan as mentioned in point 1 can be rehearsed and even tested individually.

Along with this walk-through type of exercise, I would like to relate an exercise in a hospital where litters were used instead of patients. Cards outlining certain types of injury sustained were placed on these litters, and then these were taken to the various areas as though they were casualties. One interesting development was that it was found that the stairway did not permit the litters to be transported because of certain mechanical problems in the construction of stairways, but this certainly pointed out that by this very simple device that a different route for transporting casualties through those corridors had to be found.

Testing a plan segment by segment is considered adequate providing those having relationship are tested together. For example, in many plans the maintenance division will supply personnel to unload ambulances. At the same time it is generally the division which is responsible for internal traffic control. Since these assignments frequently conflict, a test of traffic control alone would not be realistic since the objective is to see how well this division will function. Another example: The use of medical records should be tested to familiarize personnel with the forms to be used and to determine the efficiency with which these can be completed. Therefore, it is advisable to test medical records in conjunction with the admission area, for the latter is the point at which records will originate. Since the admission area could be overwhelmed with patients it would be necessary to determine the facility with which medical records can be completed. It is important to avoid a bottleneck to effective triage.

One other important area of a disaster plan must be tested thoroughly. This is the alerting procedure for personnel and particularly members of the medical staff. It has been found in trials that this procedure breaks down, probably because the necessity for its rehearsal is not recognized. Without adequate personnel and medical staff serious and unwarranted delay in putting a plan into operation could result. It cannot be emphasized too strongly that this procedure be effectively rehearsed and tested periodically.

An element of surprise in a testing program is to be recommended at some time since it may uncover deficiencies in planning which might otherwise be undetected. The employment of simulated casualties together with community participation has distinct advantages. This would critically test a hospital's ability to receive, admit, and treat casualties. A certain amount of deliberate confusion, such as people seeking information, volunteers presenting themselves to help, deliberate misinformation concerning anticipated number of casualties, the unexpected arrival of a truckload of supplies, the assumption that the hospital's basement is being flooded and the power plant endangered (or already out of operation): these and similar other interpolations would lend interest and variety to the problem.

Comment

We recommend strongly, after all parts of the plan have been rehearsed and tested individually or in appropriate combination, that each hospital conduct a test of the entire plan, as it might be used under actual conditions. The public relations value of this to the community as well as to the hospital, its personnel and medical staff, would seem to be immeasurable. Publicity should be obtained to assure the community that the hospital is readying itself to function in the stress of disaster. The benefits to be derived from an all-out surprise testing of the hospital plan will more than compensate for any inconvenience and give the hospital personnel a feeling of security in knowing they are prepared to discharge the community responsibility of the hospital under the most trying circumstances. If and when disaster actually occurs, the practice will be well appreciated. The hospital disaster plan is a complicated thing and we are sure you will all concede that expecting a complicated procedure to operate smoothly without prior practice is wishful thinking.

One final comment should be made. We do not imply that all of this is simple to accomplish. A broad outline has been presented; the details will suggest themselves during implementation. We recognize that careful thought and planning must go into a testing program. But the effort will be worthwhile and gratifying because the net result will be (1) the adequacy of hospital disaster plan demonstrated, (2) weakness and deficiency corrected, (3) the plan kept alive and subjected to periodic review, and (4) efficient functioning of the hospital enhanced should a disaster actually occur.

COUNCIL ON MEDICAL SERVICE

ABSTRACTS ON ABSENCE FROM WORK AND ITS RELATION TO PRIVATE PRACTICE

Studies have shown that, of all absences from work attributed to illness and injury, about 90% are due to nonoccupational illness and injury. The role of the private physician in finding and certifying health conditions justifying absence and in returning his patient to work at the earliest opportunity is therefore a most important one. This is emphasized by the fact that perhaps no more than 25% of the total work force is employed in establishments which have in-plant medical programs.

The family physician comes in contact with his patient as an individual; the company for which the patient works as an employee comes in close contact with him both as an individual and as a member of a group. In this latter relationship he may be one of a group within a certain department, engaged in a particular occupation, or belong to a specific age group. Company experiences with causes of work absence on management and medical levels have resulted in the accumulation of different types of data as well as the formulation of theories as to factors which cause, or contribute to, absence from work due to sickness.

Concern with the problem is universal.

The worker is the focus of our attention.

But, management, labor, and the economy are also affected. . .

As is the physician in industry.

And, not least of all, the family physician.

"Absenteeism," "absence from work," "work absence," "absentism," and "presentism" are among the terms which have been used to identify the problem.

Attempts to define the problem have resulted in a reappraisal of the concept of health status and the causes of work absence.

A better understanding of work absence involves accurate and detailed record-keeping.

It also involves the adoption of uniform definitions and formulas for computing work absence data.

It is from such data that we are able to add to our knowledge and understanding of the problem.

Disease and injury are causes of sickness absence, but there are factors which are related to, or influence, absence.

The physician in industry alone cannot cope with the total problem.

A teamwork approach is necessary.

Members of the Committee on Medical Care for Industrial Workers are Drs. F. J. Holroyd, Chairman, Princeton, W. Va.; T. J. Danaher, Torrington, Conn.; E. P. Jordan, Charlottesville, Va.; L. Price, New York; W. A. Sawyer, Rochester, N. Y.; F. W. Slobe, Chicago; C. C. Sparks, Ashland, Ky.; D. A. Dukelow, Consultant, Chicago; Mr. E. J. Holman, Consultant, Chicago; Dr. B. D. Holland, Secretary, Council on Industrial Health; Mr. G. W. Cooley, Secretary, Council on Medical Service, and Mr. M. Klutch, Research Associate, Chicago.

In essence, then, the practicing physician assumes a central role in the development of any program related to work absence. The failure of the private physician to participate in efforts by industry to evaluate absence from work may only result in unsatisfactory programs for all concerned.

The Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health has assembled a number of statements from various sources which reflect some of the current thinking and opinions held on various aspects of the problems of work absence. These abstracts are not intended to represent an exhaustive recording of views on this subject. They represent, rather, expressions of opinion which have appeared in recent literature and discussions and which should be of interest to all physicians.

The Committee has published a bibliography on work absence and the proceedings of a conference devoted to this field of interest. It has recently completed a "Preliminary Guide for Measuring Work Absence due to Illness and Injury," which will be printed in a future issue of The Journal.

Concern with the Problem Is Universal

"The subject of work absence among the employed population has occasioned considerable concern in medical, management, labor, and government circles, and in various community organizations. Over the years, an appreciable body of literature has been developed in the United States dealing with medical, economic, and sociological aspects of the problem." [1]

The Worker Is the Focus of Our Attention

"During the period, July-September, 1957, an estimated 662.8 million person-days of restricted activity due to illness or injury occurred. The total number of days lost from work because of illness was 126.8 million person-days in the quarter, or an annualized rate of 7.9 work-loss days per employed person per year . . . women missed work at the rate of 9.0 days per worker per year while men missed work at the rate of 7.4 days per worker per year." [2]

But, Management, Labor, the Economy Are Also Affected

"The problem . . . is not the concern obviously of any one group. It is, of course, of very vital concern to the medical profession. It is also of concern to the more than fifty million wage earners who support and make possible our national economy. . . . Absenteeism is a real problem to management in terms of cost in days and dollars of lost production. This cost is actually borne by the worker, by the consumer, and by the investor in the enterprise. Absenteeism is also of concern to management in terms of management's social obligations; concern with the individual employee's health, and a concern with the health of the employee population as a whole. It is also a concern of management because of the need we have of giving people the kinds of jobs, and the kind of job satisfaction, that they more and more require if our system is to progress, or even to survive. . . . The average absence rate, if there is such a reliable figure will be about 4 per cent of the total time that is scheduled for work. Translating this into numbers of people across the nation . . . we find that on an annual basis, there would be a production time loss of four hundred fifty-two million man days. . . . Work stoppages accounted for only twenty-two million six hundred thousand man days." [3]

"A worker's absence because of illness or injury is a general concern to labor in many ways. . . . Unions are not indifferent to the effect of absence on productivity. Labor is especially sensitive to the health of the economy and, both for practical and humanitarian reasons, wants to reclaim the losses represented by needless disability and unmet rehabilitation needs. . . . During World War II, labor joined with management to combat absences of all types. An awareness of the importance of maintaining production for national security has persisted in the 'cold-war' years.

"On a given day at least two million members of the American labor force are disabled because of illness or injury. The average worker loses seven and a half days of work in a year in temporary disabilities. The aggregate wage loss on the order of $10 billion still ignores the multiplier effect under which a given volume of absence may have a several-fold impact on production through impaired efficiency, personnel shuffling, idle equipment and the like. When the wage losses resulting from partial and from severe permanent disability are also taken into account, the loss to the economy has been estimated to be as great as one-eighth to one-fifth of the entire national income." [3]

As Is the Physician in Industry

"References to the extraordinary excess of days lost from sickness when compared with those lost from occupational diseases and injuries have repeatedly appeared in the literature. Moreover the number of days lost annually from sickness has been frequently converted into a sizable number of tanks, guns, planes, and ships. In short the problem of immediate concern is one of prevention and control. The industrial physician, therefore, finds himself confronted with the responsibility of determining where, when, and under what conditions ill health is occurring."[4]

And, Not Least of All, the Family Physician

"In all of this . . . you can readily see that the role of the private physician, and the diagnoses he makes, are paramount, since about 90 per cent of the time lost is on account of non-occupational disease and injury."[3]

"Absenteeism," "Absence from Work," "Work Absence," "Absentism," and "Presentism" Are Among the Terms Which Have Been Used to Identify the Problem, but . . .

"The concept of 'absenteeism' needs broadening. The word itself is defective. *It is a cousin to 'accident-proneness.'* It denotes a disposition to being absent and this makes a trait of what may in effect be a great variety of different disabling conditions. Perhaps the time has come to retire this word, which is technically inappropriate except within its much smaller, rigorous meaning. Its fatal weakness is that its sole criterion is attendance and that it fails to distinguish those days when the employee should be absent."[3]

"Absenteeism apparently has a bad moral connotation. And yet there are absences that represent desirable leaves—sort of investments in better personnel relations; improved production; prevention of prolonged costly absences and the loss of key personnel."[5]

"We have spent considerable time analyzing the apparent causes of sickness absenteeism. We were surprised to find that sickness absenteeism was not necessarily the result of disease."[3]

Attempts to Define the Problem Have Resulted in a Reappraisal of the Concept of Health Status and the Causes of Work Absence

"A worker on the job must be both willing and able to be there; if one of these conditions is not satisfied, he will be absent."[6]

"If a worker fails to be present on the job, the chances are that both he and his associates will attribute his absence to sickness. It is true, however, that *the worker's conclusion that he is unable to* work may have been influenced, consciously or subconsciously, by a number of considerations not directly related to health in the usual sense of the word. Frequent absences are inevitable unless the worker has both the will and the physical ability to work."[7]

"The true health status of the worker is obviously a primary consideration. While this may be so obvious as to seem trite, the statement is almost without meaning. Many workers with rather serious health problems may have perfect work attendance, while others seemingly in robust health may have considerable and even excessive 'sickness' absenteeism. Some of the apparent disparity arises from our limited concepts of health and disease."[7]

A Better Understanding of Work Absence

"Starts with accurate and detailed record-keeping."[8]

"Because of the importance of the problem of sickness among industrial workers, the difficulties surrounding its investigation should not discourage the collection of data and any attempts that might be made in their analysis. The pertinent data therefore should be uniformly recorded, carefully analyzed, and interpreted with caution."[3]

"There appears to be no single definition of an absence that is generally acceptable, since absence records are maintained for various purposes, and each company collecting these data presumably selects a definition that best fits its needs."[3]

"Since the problem is concentrated in a relatively small segment of the employee population, the first and obvious step is to identify this group. Record keeping is a basic requirement. Depending upon the size of the employee population and the available personnel, one might review the 5, 3 or 1 per cent of workers with the poorest work attendance. This should be done on a departmental, section, or craft basis at first so that variations in the prevalence of absenteeism within the plant may be apparent. In this way, attention can be directed toward the possibility that group factors, such as improper supervision, public health problems, and job hazards, are influencing work attendance adversely."[7]

"In order that such statistical data may be comparable from one industry to another, uniform methods of recording and tabulating are essential. Although, for certain purposes, industry may require quite detailed medical records, records of morbidity absences need be neither extensive nor complex.

"Industry should be able to obtain data on morbidtiy absences in terms of persons absent, the numbers of absences, and the amount of lost time, all by sex and age group, with division of these into *disease and injury (alternatively sickness and accident)*, and a breakdown showing occupational absences, in both categories. It should be possible to examine these data in relation to the age and sex composition of the population at risk, for total morbidity and for various causes, with the computation of appropriate rates or indices. Studies of repeat illnesses, occupational variations, and other aspects should generally be made the subject of special enquiry, because they multiply the time of recording the analysis beyond that required to produce the essentials, and require additional data on company population."[3]

It Also Involves the Adoption of Uniform Definitions and Formulas for Computing Work Absence Data

"The difficulties connected with the drawing of sound conclusions from sickness absenteeism data have perhaps been sufficiently emphasized. Attention, however, should also be directed to the matter of cause and the onset of illness, both of which may be frequently outside of employment and unrelated to it. Moreover, the diagnosis may be at times equally uncertain."[4]

"An employee absent from work should be considered to be on 'sick absence' when the reason for absence is his or her own illness or injury. The total duration of such an absence is to be considered as 'sick absence' and recorded accordingly. The practice is to be discouraged of giving to an absence, which by this definition is sick absence, some such label as 'annual leave,' 'administrative leave,' or 'leave without pay,' after the absence has exceeded a specified number of days, in order thereby to avoid the recording of this as a sick absence. Maternity leave should not be classified as sick absence, except when complications increase the normal maternity leave."[1]

"Severity rate, frequency rate, and disability rate, are the three measures which have been selected to promote uniformity in the collection, recording, and interpretation of sick absence statistics. Although other measures are in use and utilized for different purposes and reasons by various companies, the use of these three measures is recommended as standard practice. The Committee [on Medical Care for Industrial Workers] further recommends, for denoting duration of absence, the use of 'calendar days. . . .'"[1]

"The frequency, severity and disability rates chosen as sickness absenteeism indices, are defined as follows: The frequency rate is the average annual number of absences per thousand workers. The severity rate is the average number of days lost per absence, while the disability rate is the average number of days lost per worker per year. If you have any two of these rates, you can calculate the third."[3]

It Is from Such Data That We Are Able to Add to Our Knowledge and Understanding of Various Aspects of the Problem

"Absenteeism among the older workers from 55-65 years of age is less frequent because of illness than among the younger age group of 20-40 years. These statistics were gathered during years of full employment, when large numbers of older workers were on the job. They were apt, however, to stay out longer with an illness, than the younger person, because the speed of recuperation was slower. It was also noted that visits to the plant health centers for colds, headache and gastro-intestinal upsets were fewer. The older worker shows a much greater willingness and zeal to stay on the job. He may have slowed up a bit, so that his daily output may not be so great, but he is more apt to be there every day to fulfill his obligation to his employer. He is holding up his end of work as far as absenteeism, accidents and various disabilities are concerned. It would seem, therefore, that some of the prejudice against the older worker is not based on fact."[3]

Disease and Injury Are Causes of Sickness Absence, but There Are Factors Which Are Related to, or Which Influence, Absence

"Absenteeism cannot be eliminated. A certain amount of absenteeism is inevitable, and a certain amount of absenteeism can be used profitably in the interest of the health of employees. During the year of 1954, at least 25 per cent of our long term absences (that is once a week or more), were the result of our doctors' recommendations. The doctors found things wrong with employees that they didn't know were wrong with them, and sent them out for treatment. The Medical Department willfully contributed 25 per cent of the long term absence by doing that."[3]

"Factors related to absence are 'Time of day or shift; Day of week; Month of year; Year-to-year changes; Age, sex, and marital status of employees; Income of employees; Length of service of employees; Type of work done by employees; Type of operation performed by firm; Geographic location of firm, and Personnel practices of firm.'"[6]

"Factors Influencing Sickness Absenteeism

A. Intrinsic, i. e., within the worker
  1. *Health status*
    a. *Physical*
    b. Emotional
    c. Social
  2. Adjustment to job
    a. Innate ability or intelligence
    b. Education and/or training
    c. Proper assignment

B. Extrinsic, i. e., the worker's environment
  1. Biological environment
    a. Supervisor
    b. Associates on the job
    c. Family
    d. Union officers, club associates, church associates, etc.
    e. Friends and neighbors

  2. Physical environment
    a. Health hazards on and off the job
    b. Housing and housekeeping, both on and off the job
    c. Economic climate, etc.
      (1) Salary and benefit programs
      (2) Availability and use of medical services
        (a) Preventive
        (b) Constructive
        (c) Curative
        (d) Educative"[3]

The Physician in Industry Alone Cannot Cope with the Total Problem

"You will note that only the first or second of some 14 causes are strictly speaking in the realm of the doctor. The others are more closely related to problems of social, economic and other types of adjustment to the environment."[3]

"Whenever the physician in industry abandons his role of consultant, and assumes line responsibility for the administration or control of benefit programs, he loses his usefulness to management, and jeopardizes his unique and valuable relationship to the employees of the company."[3]

"The function of the medical department assumes a dual role: one, towards obtaining a low 'illness rate' for organic illness or serious mental illness; the other, towards helping management reduce the 'absence rate' that is due to reasons other than organic illness. But note here that I emphasize the phrase 'helping management' when it comes to reducing non-illness absenteeism."[3]

"It's human nature to feel that it's not smart to admit traffic accidents or traffic law violations to an employer. I know that many reports of an illness at home, or a bad cold or injury suffered in the 'do-it-yourself' workshop conceal a traffic injury, accident or a traffic ticket. Any person experienced in personnel will know the proportion of these is probably substantial."[10]

A Teamwork Approach Is Necessary

"Any intelligent approach to sickness absenteeism, any effective approach to sickness absenteeism, has to be by a team of people. The doctor alone cannot cope effectively with the problem."[3]

"The reduction of total absenteeism must be a function of management, whether the origin of such absenteeism be emotional, physical, or due to extraneous causes such as the opening of the baseball season or the celebration of a birthday.

"Over the last hundred years management has developed a keen appreciation, an intuitive appreciation, of the causes of total absenteeism. It has, through the very nature and essence of its activity, begun to develop, in order to survive, aptitudes and skills in its relations with employees. In direct proportion to the degree that it succeeds or fails in this sphere, so it succeeds or fails as management *per se*.

"The absenteeism rate in any enterprise is in direct proportion to the degree of efficiency of the management, and these rates differ in accordance with the policies of individual management."[3]

"The responsible supervisor will keep adequate attendance records and will review them frequently. He will note all instances of repeated absence of short duration, and absences occurring immediately prior to, or after, holidays and days off. Distinct absence patterns revealed by such records indicate the presence of a problem, and definite steps should be taken toward a constructive solution. Dr. L. J. Wade of Esso Standard Oil Company has reported that 'in many instances excessive or abnormal sickness absenteeism is only one of many evidences available to supervisors that a worker is not properly assigned or is incapable of adjustment to the demands of industry or other productive employment.'

"Dr. Wade's study included sharts showing sickness absenteeism rates in two departments at a single company location during a one-year period. As he points out, 'These charts are alike in that the percentages of workers in the particular department with absences ranging from none to six or more are represented by individual bars. Chart 1 is a beautiful example of a normal absenteeism experience. Most employees were not absent at all, while none were absent more than four times. Contrast this picture with that in Chart 2 where 75% of the employees were absent one or more times, several as many as six times during the year. Why should there be such a striking variation from one department to another when employees are working for the same management, at the same location, ostensibly under similar working conditions? There may be a number of factors, but I am convinced that there is none with which a good supervisor could not cope. I am inclined to believe that morale factors are of extreme importance.' "[9]

"This survey was made by getting the employee's attitudes, through interview and questionnaire, about all job aspects and then checking group absence rates to determine what correlations were present.

"I picked out just a few of the factors that, according to our studies, affect the group attendance on the job. One of them is the matter of job responsibility. The employees were asked in this particular situation whether or not they felt they had an adequate amount of responsibility, whether or not they could assume more, and they answered in varying degrees, of course.

"On the matter of job responsibility, we found that, of the people who had only one absence in a six-month period, 62 per cent indicated they had a sufficient amount of responsibility. At the other end of the scale the people who had more than four absences in a six-month period—only 35 per cent of them indicated that they felt they had an adequate amount of responsibility. All of the other factors follow this general trend. . . .

"These are just indicators of the correlation between employee attitudes about their jobs and their attendance on the job. This kind of relationship held true for other factors, such as whether or not an employee feels free to discuss personal probems with his supervisor. It also holds true for whether he feels he is a member of the group, whether there is team spirit in his work group, or whether he feels he is rejected and is an outside person in that situation. It also holds true as to whether he feels the company is utilizing his skills to his best advantage; and it also holds true for such factors as his feeling about his opportunities for promotion."[3]

"The specific events underlying an absence are usually commonplace and correspond most closely to a 'reason' for it. However, events or potential 'reasons' of one particular kind, or class, may occur more often in some groups than others, e. g., in groups with differing family responsibilities; they may also be associated more with some times of the day or days of the week, than with others.

"One step toward understanding, predicting, and coping with absence lies in discovering such associations. Of the more general factors, the problem is to find the most important in determining how strongly the individual will strive to maintain full attendance at work. The evidence . . . suggests that wage level may be one such factor. Family responsibilities may also act in this way but, in addition, it seems likely that the question of whether to go absent or not occurs more frequently in some family responsibility groups than in others."[11]

"True reduction in total absenteeism will occur when together, management, labor and industrial medicine allocate to the industrial medical service its proper functions of illness prevention and counselling service, and so enable it to help the worker achieve and maintain the highest level of physical and emotional well-being."[3]

"I would also like to stress the need of greater cooperation between the industrial physician and the general practitioner in the community."[3]

Conclusions

The foregoing quotations reflect some of the elements which enter into a consideration of the problem of absence from work, and with which the family physician should be acquainted. An awareness of them will assist in a clearer understanding of the causes of such absence, in the ultimate compilation of data which will accurately reflect true sickness statistics, and in the development of programs in which all physicians may cooperate.

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MEDICAL NEWS

ARIZONA

Agreement on Proposed Medical School.—Following a special meeting of the council of the Arizona Medical Association, spokesmen for the association and for physicians working with the citizens committee for an Arizona state medical school arrived at the following agreement: (1) The physicians of Arizona strongly support establishing a medical school in Arizona; (2) The contribution and interest of all groups is welcome; (3) The most practical way to hasten the establishment of a medical school in Arizona appears to be to support the approach proposed by the board of regents. (The regents have committed themselves to hire qualified experts to study the questions and supply the answers necessary to proceed.)

The Arizona Medical Association emphasized that it will take no stand on the location of a school and merely hopes that when a location has been determined, all gifts will be given without restriction. The association voted an initial $1,000 to hasten the study needed for the establishment of a medical school in Arizona.

GEORGIA

Meeting of Allergists in Atlanta.—The 13th annual meeting of the Southeastern Allergy Association will be at the Heart of Atlanta Motel, Atlanta, October 31-November 1. Among others, Dr. Merle W. Moore of Portland, Oregon, president of the American College of Allergists, will discuss "Clinical Evaluation of Stock Vaccine in the Treatment of Bronchial Asthma". Dr. Oscar Swineford, Jr., Charlottesville, Virginia; "Basic Information on Desensitization"; Dr. C. Raymond Arp, Atlanta, "Histamine Therapy of Drug Reactions"; Dr. Walker Lee Rucks, Memphis, Tennessee, "Bronchiolitis—Diagnosis and Treatment"; Dr. Woods A. Howard, Lakeland, Florida, "Use of the Rare Food Diet in Diagnosis of Chronic Urticaria", and Dr. Austin T. Hyde, Jr., Rutherfordton, North Carolina, "Emotions in Asthma".

ILLINOIS

Lecture on Emotional Forces in the Family.—The second lecture in the annual North Shore Hospital lecture series will be held at the hospital at 225 Sheridan Road, Winnetka, November 5, at 8:00 P. M. Dr. Lucie N. Jessner, professor of psychiatry, University of North Carolina School of Medicine, Chapel Hill, will speak on "The Role of the Mother in the Family". The American Academy of General Practice has approved these lectures for category II credit. Physicians and allied professional personnel are invited.

Illinois Alumni Seminar Day.—University of Illinois Medical Alumni Seminar Day will be held on the Chicago Professional Colleges campus November 22, to which all alumni of the College of Medicine are invited. There will be a panel discussion on "Blood Transfusions and Laboratory Aids in the Diagnosis of Medical Problems", followed by a question and answer period, then a panel discussion on recent advances in surgery, and seminars in the departments of medicine, surgery, pediatrics and obstetrics and gynecology. The program chairman is Dr. Louis R. Limarzi, associate professor of medicine.

State Psychiatric Institute Appointments.—Dr. Otto L. Bettag, director, Illinois Department of Public Welfare, has appointed the following to constitute the Advisory Body of the Illinois State Psychiatric Institute: Dr. Francis J. Gerty, Dr. C. Knight Aldrich, Dr. Benjamin Boshes, Dr. Harry H. Garner, Dr. Roy R. Grinker, Dr. John J. Madden, and Dr. Gerhart J. Piers. This Advisory Body has approved the following appointments: Dr. Lester H. Rudy, superintendent; Dr. Percival Bailey, director of research, and Dr. Jules H. Masserman, director of education. The institute, a 400-bed neuropsychiatric hospital, will provide facilities for diagnostic and therapeutic services, for undergraduate and postgraduate training and for investigations in neuropsychiatry. Those interested in joining its staff or in opportunities for resident or other training beginning in 1959 may write Dr. Rudy, ℅ Institute for Juvenile Research, 907 S. Wolcott Ave., Room 228, Chicago 12.

Chicago

Study on Chemistry of Brain.—A five-year grant estimated at $225,000 for studies on the chemistry of the brain has been awarded to Dr. Alexander Geiger, professor of neurophysiology, University of Illinois College of Medicine, who has received the first installment of $45,000. The award was made by the National Institute of Neurological Diseases and Blindness, a division of the U. S. Public Health Service.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Society News.—The Chicago Society of Allergy has elected the following officers for the coming year: president, Harold C. Wagner, M.D.; president-elect, Israel A. Fond, M.D.; and secretary-treasurer, Bert B. Schoenkerman, M.D.——The Chicago Society of Internal Medicine has elected the following officers: president, Dr. Ernest G. McEwen (Evanston); vice-president, Dr. Wright R. Adams; and secretary-treasurer, Dr. Franklin A. Kyser, (Evanston).

Dr. Van Dellen Receives Award.—At its annual meeting in September in Chicago, the American Medical Writers' Association gave its 1958 distinguished service award to Dr. Theodore R. Van Dellen, assistant dean of Northwestern University Medical School; associate editor of the Illinois Medical Journal, and health editor of the Chicago Daily Tribune. The award is given annually to a fellow of the American Medical Writers' Association who has made distinguished contributions to medical literature or rendered unusual and distinguished service in the medical profession.

Personal.—Dr. Robert D. Moore, who, for the past 10 years has been in private practice in Kankakee, Illinois, and South Bend, Indiana, has been named associate professor of orthopedic surgery at the University of Chicago. From 1941 to 1948 Dr. Moore was on the staff of the university as research assistant, instructor, and then assistant professor. ——Dr. Eleanor M. Humphreys, professor of pathology and head of the surgical pathology laboratory at the University of Chicago's Medical Center, retired from the University September 30 after 35 years service.

KENTUCKY

Faculty Members Appointed at the University.—William H. Knisely, Ph.D., associate professor of anatomy and assistant professor of medicine, Duke University Medical School, Durham, North Carolina, has been appointed chairman of the department of anatomy at the University of Kentucky's new medical school and George W. Schwert, Jr., Ph.D., professor of biochemistry at Duke University has been appointed head of the biochemistry department at the University of Kentucky's medical school effective next July.

MARYLAND

Layman Honored by Medical Fraternity.—The Phi Lambda Kappa Medical Fraternity has established an award "to be conferred annually upon that nonphysician who has made an outstanding contribution in the interest of medicine." Mr. Jacob Blaustein, of Baltimore, was selected to be the first recipient "because his meritorious accomplishments in the furtherance of humanitarianism have extended over into, and have so richly benefited, the Cause of Medicine." The award was made Oct. 4 at a banquet. Mr. Blaustein is a former president of the Associated Jewish Charities of Baltimore (among the constituents of which is the Sinai Hospital); and a director of the Commission on Health Careers.

MASSACHUSETTS

Traineeships in Child Psychiatry.—The Walter E. Fernald State School, Waverley, has two traineeships in child psychiatry under the Training and Standards Branch, National Institute of Mental Health, Bethesda, Md., for physicians who want to complete their psychiatric education by spending a year in training in a school for the mentally retarded. The training is accredited for future diplomates of the Board of Psychiatry and Neurology. Applicants should write to: Dr. Clemens E. Benda, Director of Psychiatry and Research, Walter E. Fernald State School, Box C, Waverley 78, Mass.

MICHIGAN

Grants to Wayne University.—Gifts and grants of more than $693,700 were accepted by the Wayne State University Board of Governors at its September meeting. The largest amount, $516,207, came from the U. S. Public Health Service, National Institutes of Health, and is made up of 28 different grants for research at the Colleges of Medicine, Liberal Arts, Nursing, Education and at the School of Social Work. The American Cancer Society has also allocated $46,303 to continue studies of experimental pulmonary cancer in animals at the College of Medicine. Another $36,666 institutional research grant from the American Cancer Society is to be administered by a University-wide cancer committee. The U. S. Office of Vocational Rehabilitation has given two grants totaling $56,214 to continue traineeships in rehabilitation counseling and occupational therapy in the College of Education.

Annual Postgraduate Clinic in Detroit.—The 12th annual fall postgraduate clinic will be held at the Sheraton-Cadillac Hotel, Detroit, November 12-13, sponsored by the Michigan Academy of General Practice and the Wayne County Academy of General Practice, with the program approved by the councils of the Wayne County Medical Society and the Michigan State Medical Society. There will be symposiums on "Newer Medications", "Pediatrics", "Practical Therapeutics", and "General Medicine". There will be panels on "Psychiatry", "Cardio Vascular Disorders", "Mental Health", and "Urology". Both symposiums and panels will include speeches by outstanding investigators from various other cities. There will be scientific and technical exhibits, a congress of delegates, and a social program Wednesday evening, including a reception and banquet.

MINNESOTA

Dr. Mayo Receives Writers' Award.—At its annual meeting in Chicago in September, the American Writers' Association gave its 1958 honor award to Dr. Charles W. Mayo of Rochester, Minnesota. The citation read in part: "Your interest in education is reflected in your position as a regent of the University of Minnesota and as a trustee of both the University of Pennsylvania and Carleton College. Second to none of these achievements are your accomplishments as a medical writer and editor."

NEBRASKA

Hospital Grant.—A March of Dimes grant of $56,975 has been made for the support during the coming year of the Poliomyelitis Respiratory and Rehabilitation Center at Creighton Memorial-St. Joseph's Hospital. Medical director of the center is Dr. Harold N. Neu.

NEW YORK

Medical Economics Meeting in Buffalo.—The Erie County Medical Society, in cooperation with The Wm. S. Merrell Company, will sponsor an all-day meeting on medical economics at the Hotel Statler-Hilton, November 6. Dr. Max Cheplove, Buffalo, N. Y., president of the Erie County Medical Society, said that the three general subjects for discussion will be "The Doctor and His Office—Improving his human relationships and his business management"; The Doctor and the Law—Protecting himself against professional liability suits and planning his tax program"; and "The Doctor and His Life Planning—Selecting his investments, insurance, and planning his estate". The announcement states that 8 experts will present papers. At the luncheon, Dr. Arthur D. Kelly, Toronto, Canada, executive secretary of the Canadian Medical Association, will speak on economic problems in hospital care confronting Canadian medicine. This meeting is said to be an outgrowth of the pioneering medico-legal film series produced by the American Medical Association's law department in cooperation with the Wm. S. Merrell Company.

New York City

Reiss Memorial Lecture.—The New York Institute of Clinical Oral Pathology will present the 7th Herman L. Reiss memorial lecture at the New York Academy of Medicine, 2 East 103rd Street, October 27 at 8:30 P. M. The speaker will be Seymour J. Kreshover, M.D., D.D.S, of the National Institutes of Health, Bethesda, Maryland, on "Prenatal Factors in Oral Pathologic Conditions". Members of the medical and allied professions are invited.

Personal.—Dr. Lawrence Michael Drennan Jr., has been appointed medical director of the United Fruit Company and will move to New Orleans, since the company's medical department headquarters will be transferred there from New York. He succeeds Dr. Edward I. Salisbury, who is retiring after 32 years' service with United Fruit.——Dr. Chester A. Swinyard, former medical director of the Rehabilitation Center at the University of Utah College of Medicine in Salt Lake City, has been appointed associate director of the Children's Division of New York University.

OHIO

Health Museum Scholarships.—The Cleveland Health Museum has announced that Christian S. Nakama, executive director, Hawaii Cancer Society, is the 1958 winner of the Lester Taylor M.D. scholarship. Dr. Taylor was one of the founders of the Cleveland Health Museum and a past president of the Academy of Medicine of Cleveland. Applications for the 1959 fellowship, which carries a $500 stipend, should be addressed to Dr. Bruno Gebhard, Cleveland Health Museum, 8911 Euclid Ave., Cleveland 6, Ohio.

OREGON

State Medical Election.—The Oregon State Medical Society at its annual meeting in Portland, Sept. 3-4-5, elected Dr. Louis J. Feves, a general practitioner of Pendleton, president-elect; Dr. Verner V. Lindgren, Portland, vice-president; Dr. Max H. Parrott, Portland, secretary-treasurer, and Dr. Blair J. Henningsgaard, Astoria, speaker of the house, reelected. Doctors Archie O. Pitman of Hillsboro and Dr. John G. P. Cleland, Oregon City, were reelected delegate and alternate delegate, respectively, to the American Medical Association. Dr. Herman A. Dickel, Portland, was installed as president for the ensuing year. The society's "Oregon Doctor of the Year" award was presented to Dr. DeNorval Unthank, Portland. The next annual meeting will be in Medford, Sept. 23-25, 1959.

PENNSYLVANIA

Philadelphia

Lectures on Drug Evaluation.—A series of lectures and discussions on the second Tuesday of the month, from October to May, from 7:30 to 9 p. m., will be held at the Philadelphia College of Pharmacy and Science, 43rd St., and Kingsessing Ave., in West Philadelphia. No registration or attendance charges will be made. The program is as follows: Nov. 11—Evaluation of Antihypertensives, Robert A. Maxwell, Ph.D., Ciba Pharmaceutical Products. Dec. 9—Evaluation of Diuretic Drugs, Dr. Karl H. Beyer and John E. Baer, Ph.D., Merck Sharp & Dohme. Jan. 13—Evaluation of Analgesic Drugs, Eaden F. Keith, Hoffman-La Roche, Inc. Feb. 10—Evaluation of Drugs Affecting Neuromuscular Transmission, Dr. William A. Davis, Wallace Laboratories. March 10—Evaluation of Drugs Intended for the Treatment of Hyperlipemia, Dr. Joseph Seifter, Wyeth Laboratories. April 14–Evaluation of Anti-Inflammatory Steroids, Preston Perlman, Ph.D., Schering Corporation. May 12–Cytological Methods in Drug Evaluation, James C. Lewis, Ph.D., Philadelphia, National Drug Company.

WEST VIRGINIA

Hospital Conference.–There will be a one-day radiology conference at Man Memorial Hospital, Man, Nov. 7. Dr. Benjamin Felson, director, department of radiology, Cincinnati General Hospital, will be the guest speaker. The program will begin at 9:30 a. m. and will cover items of interest to general practitioners as well as radiologists. All interested physicians are invited.

Personal.–Dr. Ralph H. Nestmann, of Charleston, has been elected president of the West Virginia Tuberculosis and Health Association, succeeding Mr. Oscar J. Andre, of Clarksburg.—–Dr. Mildred Mitchell-Bateman has been appointed superintendent of the Lakin State Hospital to succeed Dr. Simon O. Johnson, who resigned last May. Dr. Mitchell-Bateman is a diplomate of the American Board of Psychiatry and Neurology.—–Dr. Frank A. Carone, of Morgantown, has been awarded a fellowship for heart research study at the University of London by the Life Insurance Medical Research Foundation. Dr. Carone was the recipient of this same award for 1957. In London, he will work with pathologist, Sir Gordon R. Cameron.

Annual Seminar at Bluefield.–The 6th annual medical seminar, sponsored by the Bluefield Sanitarium, Stevens Clinic and Clinch Valley Clinic, in Bluefield, will be held at the Bloomfield Country Club, November 12th. Dr. Frederick D. White will discuss "Early Ambulation Following Cataract Surgery"; Dr. Oscar M. Weaver Jr., "*Bile Stasis*"; Dr. *William* F. Hillier Jr., Asheville, N. C., "Little Strokes"; Dr. John Borden Graham of the University of North Carolina School of Medicine, Chapel Hill, "Diagnosis and Treatment of Bleeding Disorders"; and Dr. Harry H. Ware Jr., of the Medical College of Virginia, Richmond, "Ectopic Pregnancy". There will be a social hour followed by a banquet at 7:00 p. m. at which Dr. Elbyrne G. Gill, Roanoke, Va., director of the Eye Bank and Sight Conservation Society of Virginia, will speak on "The Eye Bank's Contribution to Ophthalmology".

WISCONSIN

New Chairman of Department of Neurology.–Dr. Francis Michael Forster, formerly dean of the Georgetown University School of Medicine, Washington, D. C., has been named chairman of the department of neurology, University of Wisconsin Medical School, Madison. Dr. Forster has held medical school appointments at Harvard, Yale, Boston University, Jefferson, and Georgetown University. He has served as consultant to Veterans Administration and Armed Forces hospitals and to the Institute of Mental Health and is joint representative of the American Neurological Association and the American Academy of Neurology to the National Research Council.

GENERAL

Postgraduate Cruise to the Caribbean.–The University of Texas Postgraduate School of Medicine, Houston, announces its second Medical Cruise to the Caribbean. Lecturers have been obtained representing medicine, radiology, surgery, obstetrics and gynecology, and pediatrics. The group will sail from New Orleans May 5 on the M. S. Stella Polaris and return May 18. Twenty-five hours of scheduled teaching will be offered. Inquiries should be directed to The University of Texas, Postgraduate School of Medicine, Houston 25, Texas.

Public Health Physicians Meeting.–The American Association of Public Health Physicians will meet at Kiel Auditorium in St. Louis October 29. Dr. Sanford P. Lehman of Seattle, Washington will give the presidential address. Dr. Carl J. Potthoff of the University of Nebraska College of Medicine, Omaha, will discuss "Television Advertising of Health Related Products". The panel discussion will be moderated by Dr. Bruce Underwood of Washington, D. C. and the other speakers will be Drs. Wilson T. Sowder of Jacksonville, Florida; Harold M. Erickson of Portland, Oregon; Benjamin Freedman, New Orleans, and Roger F. Sondag of Murphysboro, Illinois.

Report on Accident Mortality.–Accidents in public places are a major source of mortality in our country, statisticians of the Metropolitan Life Insurance Company report. Each year more than 55,000 persons are killed in accidents on streets, highways and in other public places. Three times as many males as females are victims. The bulk of motor vehicle fatalities are among drivers and passengers in cars that collide with other vehicles, railroad trains, or fixed objects, or in cars which overturn. Only about one-fifth of the *deaths are* among pedestrians. Accidental falls in public places take about 5,000 lives, nearly half being fatally injured in homes for the aged, hospitals, and in other resident institutions.

Postgraduate Assembly in Boston.–The 16th annual New England Postgraduate Assembly, a three-day program, will be held at the Statler-Hilton, Boston, Nov. 4-6, under the auspices of the six New England state medical societies and chapters of the American Academy of General Practice. Dr. Kenneth W. Warren, representing the Massachusetts

Medical Society, is chairman. In addition to morning clinics at Boston hospitals, the program will include lecturers, panel discussions, clinicopathological conferences, luncheon symposiums, medical films, and scientific and technical exhibits. A special program for wives of attending physicians has been arranged. For information write the New England Postgraduate Assembly, 22 The Fenway, Boston 15.

Student Awards for Research.—Sheard-Sanford prizes for meritorious research by medical students have been awarded to 13 students specializing in pathology, Dr. Joseph E. Flynn, of Columbia, Mo., chairman of the Research Committee of the American Society of Clinical Pathologists, has announced. The awards of $100 each are financed by royalties from the photelometer designed by Drs. Charles Sheard and Arthur H. Sanford of the Mayo Clinic, Rochester, Minn. The Sheard-Sanford Fund was first used to provide cash prizes for praiseworthy research performed by young members of the pathology society. The policy was changed in 1954 to one of providing prizes for medical students conducting meritorious research and there was one student winner that year. In 1955 there were 6. This year's 13 awards are the first given since then.

Awards for Neurological Research.—The National Neurological Research Foundation has announced that three National Neurological Research Foundation scientists will receive awards of from $10,000 to $12,000 a year for five years. These awards will unite basic research on multiple sclerosis, Parkinson's syndrome, amyotrophic lateral sclerosis, muscular dystrophy, cerebral palsy, epilepsy, and other clinical entities. The foundation is a nonendowed voluntary tax-exempt organization with headquarters at 3255 N Street, N. W., Washington, D. C. The foundation scientists are: Dr. Michael V. L. Bennett, D.Phil., research associate, department of neurology, College of Physicians and Surgeons, Columbia University, New York City; Dr. Byron H. Waksman, assistant professor, bacteriology and immunology, Harvard Medical School, Boston; and Dixon M. Woodbury, Ph.D., associate research professor of pharmacology, University of Utah College of Medicine, Salt Lake City.

Meeting of Society for Crippled Children.—The National Society for Crippled Children and Adults will meet Nov. 16-20 at the Statler Hotel, Dallas, Texas. The speakers will include specialists in rehabilitation, medicine, welfare, business, industry, and government. Four society counselors will be cited for their "outstanding contributions" in the field of cerebral palsy at the annual meeting: Drs. George G. Deaver, professor of physical medicine, New York's Bellevue hospital; Leslie B. Hohman, professor of psychiatry, Duke University Medical School, Durham, N. C.; Winthrop M. Phelps, medical director, Children's Rehabilitation Institute, Reisterstown, Md.; and Meyer A. Perlstein, chief, Children's Neurological Service, Cook County Hospital, Chicago. There will include institutes, seminars, workshops, round-table discussions, and demonstrations in rehabilitation. The social program includes a shrimp boil sponsored by the Louisiana Chapter of the society, a chuck wagon dinner, the annual president's banquet, square dances, and tours. For information write The National Society for Crippled Children and Adults, 11 S. LaSalle St., Chicago 3.

Southern Medical Association Meeting.—The annual meeting of the Southern Medical Association will be held in New Orleans November 3-6. In addition to a four-day schedule of scientific work presented by physicians from various cities throughout the United States, other societies which will meet will be the Southern Chapter of the American College of Chest Physicians; the Southern Section of the Association for Research in Ophthalmology; the Southern Gynecological and Obstetrical Society, and the Flying Physicians Association. More than 30 alumni groups of southern medical colleges will meet and an elected representative of the senior classes of southern medical schools will be guests of the association. Dr. Francis J. L. Blasingame, Chicago, executive vice president of the American Medical Association, will speak at the president's luncheon on Monday, November 3. According to the bulletin of the Southern Medical Association, plans have been made for the adjourned sessions of the Southern Medical Association's 52nd annual meeting in Mexico. Information concerning these sessions may be obtained from Southern Medical Association headquarters, 2601 Highland Ave., Birmingham 5, Ala.

Poliomyelitis.—According to the Morbidity and Mortality Weekly Report of the United States Public Health Service, dated September 26, 1958, the total number of cases of poliomyelitis reported for the week ended September 20 is 434; 220 of these were paralytic cases and 141 were nonparalytic. The total number of reported cases this week is about 10 percent higher than the previous week's figure, and the number of paralytic cases is about 15 percent higher. The total number of reported cases for the week ended September 21, 1957, was 212, of which 82 were paralytic and 93 nonparalytic. The cumulative total of paralytic cases is now above the cumulative figure for the same period last year. About half of the total cases and about 40 percent of the paralytic cases were reported in the East North Central area, where Michigan continues to report a high number of cases—129 total with 58 paralytic cases. The number of cases reported in Ohio is continuing to increase; 46 cases were reported this week compared with 38 last week. The number of paralytic cases has decreased slightly, however. The cases in Ohio have been distributed over most of the State. The peak week of paralytic cases since 1954 has occurred once each in the third and fourth weeks of September.

Association of Military Surgeons meeting in Washington.—The 65th annual convention of the Association of Military Surgeons of the United States will be in the Statler-Hilton Hotel, Washington, D. C., November 17-19 under the presidency of Col. Charles R. Mueller, M.D., U. S. Army, retired. The theme of the meeting will be "Dynamic Medicine and Rehabilitation in the Space Age". General Alfred M. Gruenther, president, American National Red Cross, will speak at the opening ceremonies, followed by a panel of service chiefs at which Major General George F. Lull, U. S. Army, retired, assistant to the president of the American Medical Association, will be the moderator. Monday afternoon there will be a panel meeting on "Problems of Space", the moderator being Brigadier General Don Flickinger of the Andrews Air Force Base, Washington, D. C. There will be a symposium on "Rehabilitation" presided over by Dr. Charles D. Shields, director, Department of Physical Medicine and Rehabilitation, Georgetown University Medical Center, Washington, D. C., and a panel on "Occupational Health Problems in Space Flight", moderated by Major General Wilford F. Hall of the Wright-Patterson Air Force Base, Ohio. There will be meetings of various sections—pharmacy, nurse corps, dental corps, medical specialist corps, and sustaining membership. At the honors night dinner and dance, the various awards of the Association will be presented.

National Foundation for Research in Cutaneous Medicine.—Formation of The National Foundation for Research in Cutaneous Medicine to support and promote research in the field of skin diseases has been announced by the president of the foundation's board of trustees, Louis L. Spirt. The objectives of the foundation are "to promote the advance of medical science in the field of cutaneous diseases, afflictions and ailments", and "to stimulate, support and coordinate research, experiments, tests and studies on a broad scale". Another objective is to carry on an intensive educational campaign aimed at the general public on the subject of skin diseases by way of specially prepared articles and pamphlets and eventually by the use of special radio and television programs. The announcement says that a spokesman for the foundation estimated that a total of 25 million people in the United States are afflicted with some form of skin disease requiring medical attention and that some 4 million people suffer from psoriasis alone.

Members of the still incomplete medical advisory board of the foundation include Drs. Marion B. Sulzberger, New York City; Jasper Lamar Callaway, Durham, N. C.; Frank C. Combes, New York City; Stephen Rothman, Chicago; Herbert Mescon, Boston; Jonas F. Mullins, Galveston, Texas; Harvey Blank, Miami, Florida; Earl D. Osborne, Buffalo, New York; William L. Dobes, Atlanta, Georgia; Milton Reisch, New York City; Arthur C. Curtis, Ann Arbor, Michigan, and Lawrence G. Beinhauer, Pittsburgh, Pa. The address of the foundation is 370 Lexington Avenue, New York, 17, N. Y.

International Symposium on Tuberculosis.—A three-day International Symposium will be held in Philadelphia under the auspices of Deborah Sanatorium and Hospital. Panelists will hold scientific discussions at the Bellevue-Stratford Hotel, Nov. 20-22, ending with a medical tour of the Sanatorium at Browns Mills, N. J., Nov. 23. The chairman of the Symposium Planning Committee is Dr. George N. J. Sommer Jr., of Trenton, N. J. Participating in the symposium from abroad will be Drs. Georges Canetti, of Paris; Johannes Holm, of Geneva; Frederick R. Edwards, of Liverpool; John R. Bignall, John M. Robson, and Philip M. D. Hart, of London; Carl B. Semb and Hans J. N. Ustvedt, of Oslo. The following panel discussions (and chairman) are planned:

Chemotherapeutic Prophylactic Measures for Tuberculosis, Dr. Walsh McDermott, New York City.
The Hospital and Home, Respective Roles in Tuberculosis Management; Chemotherapy of Tuberculosis, Dr. William B. Tucker, Washington, D. C.
Problem of Relapse of Tuberculous Lesions Under Chemotherapy and Following Treatment; Dr. Gardner Middlebrook, Denver.
Tuberculosis Case-Finding; The Problem in the General Population, Schools and Hospitals, Dr. Katharine R. Boucot, Philadelphia.
Surgical Aspects of the Treatment of Pulmonary Tuberculosis; Type of Operation, Relationship to Chemotherapy, to Bacteriological Status, to Pathology of Treated Tuberculosis, Dr. John M. Chamberlain, New York City.
The Future Problem of Tuberculosis; Program for Its Control, Dr. David A. Cooper, Philadelphia.

For information write Mr. Robert J. Bramlett, 642 Widener Building, Philadelphia 7.

Meeting of Gerontological Society.—The 11th annual meeting of the Gerontological Society will be at the Bellevue-Stratford Hotel, Philadelphia, November 6-8. The chairmen of the introductory session will be Dr. Warren Andrew, professor of anatomy, Bowman Gray School of Medicine of Wake-Forest College, Winston-Salem, N. C., and Joseph T. Freeman, assistant professor of medicine, Women's Medical College of Pennsylvania, Philadelphia. Other speakers at this session will be Nathan W. Shock, Ph.D., of the U. S. Public Health Service, Bethesda, Maryland; Gunnar Gundersen, LaCrosse, Wisconsin, President, of the American

Medical Association; Robert J. Havighurst, Ph.D., professor of education, University of Chicago, and Ollie A. Randall, consultant on aging, Community Service Society, New York City. There will be sessions also on "Clinical Medicine", "Biological Sciences", "Psychological and Social Sciences", "Social Welfare", and a public meeting at 8:00 P. M. Thursday on "Gerontology and the National Scene". On Friday there will be a symposium on "Gerontology in Biology and Medicine" and one on "Gerontology in Social and Psychological Sciences and Social Welfare". Friday evening there will be a reception and social hour, followed by a banquet, the award sponsored by the Gerontological Research Foundation, and the presidential address by Albert I. Lansing, Ph.D., professor of anatomy, University of Pittsburgh School of Medicine. On Saturday there will be concurrent sessions on "Biological Sciences", "Clinical Medicine", "Psychological and Social Sciences", and "Social Welfare".

Meeting of Society for Hypnosis.—The 10th annual meeting of the Society for Clinical and Experimental Hypnosis will be at the Morrison Hotel, Chicago, October 29-31. This meeting will also mark the first annual meeting of the International Society for Clinical and Experimental Hypnosis.

The program will include breakfast seminars, round table luncheons, panel discussions and formal presentations. Preceding the annual meeting the Institute for Research in Hypnosis of the Long Island University Graduate School will present its annual workshop in clinical hypnosis, October 27-29 at the Morrison Hotel.

Among the subjects for panel discussions will be: "Hypnosis in Internal Medicine"; "Hypnoanesthesia in Obstetrics"; "Hypnotherapy in Gynecology"; and "Implications of Hypnotherapy for Psychosomatic Medicine". Among the subjects for round table luncheons and seminars will be: "Group Hypnotherapy in Obesity"; "Use and Abuse of Hypnosis in General Practice"; "Hypnosis in Asthma and Allergic Manifestations"; "Hypnoanesthesia for Minor Surgical Procedures"; "Hypnotherapeutic Management of the Schizophrenic Patient"; "Use of Hypnosis in Chronic and Acute Pain," and "Hypnosis in Management of Traumatic Injuries."

The meeting is open to physicians, dentists and psychologists, the registration for non-members being $10.00 and $5.00 for residents and interns.

The president of the Society for Clinical and Experimental Hypnosis is Dr. Bernard Boris Raginsky of Westmount, Quebec, Canada, and the chairman of the program committee is Dr. William S. Kroger of the Chicago Medical School.

Meeting of Pathologists in Chicago.—The annual joint meeting of the American Society of Clinical Pathologists and the College of American Pathologists will be at the Congress Hotel, Chicago, November 1-8. The Executive Committee of the American Society will meet Friday evening, October 31 and all day and evening Saturday and Sunday. The clinical chemistry workshop on "Liver Function Tests" will begin at 8:30 A. M., Saturday, at the University of Illinois Medical School and continue all day and all day Sunday. The forensic pathology workshop on "Homicide Investigation" will continue all day Sunday at the Chicago Police Department laboratory. Sunday evening there will be a joint reception and dinner for the councillors of the American Society and the assemblymen of the college. The panel discussions begin Monday morning on "Radioisotopes in Routine Laboratory Tests", "Anesthetic Deaths", "Role of Blue Shield and Other Third Parties in Payment for Pathology Services", and "Relation of Pathologists to Paramedical Groups". The presidential address by Dr. Charles P. Larson, Tacoma, Washington, will begin at 11:40 A. M., Monday. The hematology workshop continues through Monday morning, while the microbiology workshop goes on throughout the day. On Thursday morning there will be a joint symposium of the two societies on "Role of the Laboratory in the Diagnosis and Management of Diseases of the Endocrine Glands". Tuesday afternoon there will be workshops on "Medical Writing", "Laboratory Administration", "Histochemistry", and "Interpretation of Laboratory Findings". The joint reception and banquet will be Tuesday evening. The presidential banquet of the College of American Pathologists will be on Wednesday and the Armed Forces Institute of Pathology luncheon on Thursday.

Southwestern Medical Association Meeting.—The annual meeting of the Southwestern Medical Association will be held at Tucson, Arizona, October 23-25, with headquarters at the Pioneer Hotel, under the presidency of Dr. Louis G. Jekel of Phoenix. The scientific sessions will be confined to morning and noon meetings, leaving the afternoons for sightseeing and sports. The program will include small round-table groups for doctors. Among the speakers will be:

Dr. George C. Andrews of Columbia University College of Physicians and Surgeons of New York City on "Diagnosis and treatment of common dermatoses of the hands"; Dr. John R. Schenken of the University of Nebraska, College of Medicine, on "The Cystic Ovary—Surgical or Non-Surgical"; Dr. John I. Brewer of Northwestern University Medical School, Chicago, on "Pelvic Pain"; and Dr. Robert M. Zollinger, Ohio State University, College of Medicine, Columbus, on "The Surgical Importance of Pancreatitis". There will be a seminar on pediatrics. The opthalmologists will have a meeting Friday morning and on Friday afternoon there will be medical movies and golf, and in the evening a cocktail party and dinner. The Saturday morning session will include "Basic Issues in American Education" by Richard A. Harvill, Ph.D., president of the University of Arizona, Tucson, "Thyroid Physiology and Brain Function—Alocholism and Hangovers" by Dr. Henry J. Koch. "Subdural Hematomas in the Elderly" by Dr. Peter H. L. Stuteville of the University of Colorado Medical Center, Denver, "Recognition and Treatment of Respiratory Acidosis" by Dr. Reginald H. Smart, Los Angeles, "The Cataract Patient in General Practice" by Dr. John W. Henderson, Rochester, Minn., and "Pulmonary Tuberculosis in Childhood" by Dr. Robert H. Lennox, New Orleans.

The Southwestern Dermatological Society will also have a specialty group meeting and on Saturday afternoon there will be golf and in the evening a football game between the University of Arizona and the University of Idaho.

CORRECTION

Studies with Chlorothiazide: An Oral Diuretic.— The dose of chlorothiazide in the fourth line of the second column of the abstract on this subject in THE JOURNAL, Sept. 27, 1958, issue, page 468, should have been 1 Gm. and not 10 Gm. twice daily.

EXAMINATIONS AND LICENSURE

MEDICAL SPECIALTY BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral Examination.* Phoenix, April 5-10, 1959. The 1959 written examination will be given in various locations in the United States and Canada, July 17. The final date for filing application for the 1959 written examination is six months prior to the examination. There is no filing deadline for oral examinations. Sec., Dr. Curtiss B. Hickcox, 217 Farmington Ave., Hartford 8, Conn.

AMERICAN BOARD OF DERMATOLOGY: *Written. Several Cities,* June 30. Final date for filing all applications is April 1. Sec., Dr. Beatrice Maher Kesten, One Haven Ave., New York 32.

AMERICAN BOARD OF INTERNAL MEDICINE: *1959 Schedule—Written,* Oct. 19. Final date for filing application is May 1. *Oral.* For candidates in the South and Southwest, New Orleans, Feb. 3-6. Final date for filing application is Jan. 1. *Oral.* For candidates in the Midwest. Chicago, April 15-18. Final date for filing application is Jan. 1. *Oral.* For candidates on the West Coast. Final date for filing application is March 1. *Oral.* For candidates on the East Coast, Nov. 6-7, 9-10. Final date for filing application is March 1. *Examination in the Subspecialties. Gastroenterology.* Philadelphia, April 17-18. Final date for filing application is Feb. 1. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part I.* Various parts of the United States and Canada, January 16. Candidates notified of their eligibility to participate in Part I must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the written examination unless the case abstracts have been received in the office of the Secretary. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written,* qualifying test (Part I), January 1959. Final date for filing application was July 1, 1958. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 21-23, 1959. Deadline for receipt of applications was Aug. 15. Sec., Dr. Sam W. Banks, 116 South Michigan Avenue, Chicago 3.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 30-Nov. 1. Final date for filing application was Sept. 30. Sec., Dr. Edward B. Smith, Indiana University Medical Center, 1100 W. Michigan St., Indianapolis 7.

AMERICAN BOARD OF PEDIATRICS: *Oral.* New York, Dec. 5-7. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Written, Part I,* and *Oral, Part II.* Philadelphia, June 12-13. Final date for filing application is February 15. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York City, Dec. 15-16; New Orleans, Mar. 16-17. Training credit for full time psychiatric and/or neurologic assignment in unapproved military programs or services between the dates of Jan. 1, 1950 and Jan. 1, 1954 will be terminated on Jan. 1, 1959. Sec., Dr. David A. Boyd, 102-110 Second Ave. S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Regular Examination.* Washington, D. C., Dec. 8-11. Final date for filing application was July 1. *Special examination in Nuclear Medicine for those diplomates in Radiology or Therapeutic Radiology.* Washington, D. C., Dec. 6. Final date for filing application was Oct. 1. *Special Examination.* Cincinnati, Mar. 16-19, 1959. Final date for filing application is Nov. 1. Candidates completing training June 30, 1959 are not eligible for the Spring 1959 examinations. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: Written examinations (Part I) will be held at various centers in the United States, Canada, Hawaii, Puerto Rico, and certain military centers abroad on December 3. The date of the Fall examination in *Part I* has been changed from the last Wednesday of October as announced in its current Booklet of Information to December 3, 1958. Thereafter, examinations in Part I will be held once annually, on the first Wednesday of December. The closing date for filing applications was August 1. *Part II.* Rochester, Minn., Oct. 20-21; Nashville, Tenn., Nov. 17-18; New York City, Dec. 15-16; Houston, Tex., Jan. 12-13; New Haven, Conn., Feb. 9-10; Durham, No. Car., March 9-10; San Francisco, April 13-14; Indianapolis, May 11-12; Columbus, Ohio, May 14-15. Sec., Dr. John B. Flick, 1617 Pennsylvania Blvd., Philadelphia 3.

BOARD OF THORACIC SURGERY: Various centers throughout the United States. *Written.* Spring of 1959. Final date for filing application is December 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Avenue, Detroit 2.

AMERICAN BOARD OF UROLOGY: *Written Examination.* Twenty-five cities throughout the country, Dec. 5. The oral will be given in Chicago in February 1959. Sec., Dr. William Niles Wishard, Jr., 30 Westwood Road, Minneapolis 26.

DEATHS

Blakley, Julius Warren, Highland, N. Y.; Albany (N. Y.) Medical College, 1896; died Aug. 14, aged 84.

Burch, Lewis J. Ⓜ Mount Pleasant, Mich.; Detroit College of Medicine, 1896; associated with the Central Michigan Community Hospital; died in the Sammond Pleasant Lodge, Romeo, Aug. 17, aged 84, of cerebral thrombosis.

Clarenbach, Julius F. Ⓜ Sundance, Wyo.; Barnes Medical College, St. Louis, 1902; also a dentist; county health officer; died in St. Mary's Hospital, Rochester, Minn., Aug. 15, aged 80, of hydronephrosis.

Claybon, Festus, Madisonville, Ky.; Meharry Medical College, Nashville, Tenn., 1917; died in the Brooks Memorial Hospital, Hopkinsville, Aug. 9, aged 73.

Corse, Charles A., Kelliher, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; died June 23, aged 82, of coronary occlusion.

Daine, Donn David Ⓜ San Francisco; State University of Iowa College of Medicine, Iowa City, 1956; service member of the American Medical Association; interned at the Letterman Army Hospital; captain, medical corps, U. S. Army Reserve; found dead Aug. 11, aged 29, of an overdose of barbiturates, self-administered.

Dello Russo, Michael Ⓜ Medford, Mass.; Tufts College Medical School, Boston, 1946; certified by the National Board of Medical Examiners; veteran of World War II; fellow of the American College of Obstetrics and Gynecology; member of the New England Obstetrical and Gynecological Society; served on the staffs of the Malden (Mass.) Hospital, Lawrence Memorial Hospital in Medford, and the Boston City Hospital; died in St. Elizabeth's Hospital, Boston, Aug. 10, aged 36, of thrombocytopenic purpura.

Drouin, Wilfred George, Scranton, Pa.; School of Medicine and Surgery, Montreal, Que., Canada, 1903; an associate member of the American Medical Association; formerly practiced in Holyoke, Mass., where he was a member of the school board; veteran of World War I; died Aug. 27, aged 77.

Flesher, George Taylor Ⓜ Kermit, W. Va.; Medical College of Virginia, Richmond, 1934; specialist certified by the American Board of Otolaryngology; member of the American Otorhinologic Society of Plastic Surgery; died Aug. 14, aged 51, of a heart attack.

Green, David Samuel, Boston; Tufts College Medical School, Boston, 1922; veteran of World War I; member of the Massachusetts Medical Society; served on the staffs of the Boston City and Beth Israel hospitals; died Aug. 21, aged 60, of acute myocardial infarction.

Gridley, Norman Grandison Ⓜ Horseheads, N. Y.; University of Buffalo School of Medicine, 1929; veteran of World War II; school doctor for the Horseheads Central School District; for many years health officer; died Aug. 12, aged 56.

Griffith, Eugene Frederick, Eatonton, Ga.; University of Georgia Medical Department, Augusta, 1911; veteran of World War I; served two terms in the State Senate and two terms in the House of Representatives; served as a member of the city council and as mayor pro-tem; died Aug. 5, aged 69

Henry, Clyde A. Ⓜ Farson, Iowa; Keokuk (Ia.) Medical College, 1897; member of the American Academy of General Practice; associated with Ottumwa and St. Joseph hospitals; in 1952 named "Physician of the Year" by the Iowa State Medical Society; died Aug. 15, aged 85.

Hicklin, Frank E., Miami, Fla.; Washington University School of Medicine, St. Louis, 1897; died June 24, aged 85.

Hockenbery, Merritt L., Windgap, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1910, an associate member of the American Medical Association; died in St. Luke's Hospital, Bethlehem, Aug. 20, aged 72.

Houze, Harry George Ⓜ Westport, Conn.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1924; member of the American Psychiatric Association; assistant superintendent of the Westport Sanitarium; died Aug. 22, aged 56.

Howard, Robert Warner, Washington, D. C.; Medico-Chirurgical College of Philadelphia, 1905; died Aug. 17, aged 83, of cardiovascular disease.

Humphrey, Wade Randall Ⓜ Stillwater, Minn.; University of Maryland School of Medicine, Baltimore, 1902; fellow the American College of Surgeons; member of the American Association of Railway Surgeons; veteran of World War I; died in the Lakeview Memorial Hospital Aug. 23, aged 79, of arteriosclerotic heart disease.

Ⓜ Indicates Member of the American Medical Association.

Hurrell, M. Louise, Saugerties, N. Y.; University of Buffalo School of Medicine, 1902; an associate member of the American Medical Association; during World War I served in France as the head of the American Women's Hospital, Unit I, under the sanction of the French government; for her service was awarded the Croix de Guerre with Palm and the Medal of Epidemics with Palm, and was made an honorary citizen of France by the government; died in De Bary, Fla., Aug. 8, aged 87, of cancer of the rectum with metastasis.

Jarrell, Columbus Marion, Epps, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1907; past-president of the East and West Feliciana Bi-Parish Medical Association; formerly on the staff of the Baptist Hospital in Alexandria; died Aug. 11, aged 86, of coronary occlusion.

Judd, Clarence Wrigley, Philadelphia; University of Maryland School of Medicine, Baltimore, 1913; an associate member of the American Medical Association; died Aug. 19, aged 70, of cerebral hemorrhage.

Kelly, William Francis, Gulfport, Fla.; Medico-Chirurgical College of Philadelphia, 1907; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; died Aug. 2, aged 78.

Le Golvan, Celestin Ⓜ Marquette, Mich.; Université de Paris Faculté de Médecine, France, 1911; for many years county jail physician; on the staffs of St. Mary's and St. Luke's hospitals; died in Montreal, Que., Aug. 14, aged 73, of endocarditis, hypertension and diabetes mellitus.

Levy, Harry Robert Ⓜ Dallas, Texas; Southwestern University Medical Department, Dallas, 1910; veteran of World War I; on the staff of St. Paul Hospital and the Baylor University Hospital, where he died Aug. 21, aged 72, of cerebral thrombosis.

Lewis, Robert Ⓜ Denver; Louisville (Ky.) and Hospital Medical College, 1908; died Aug. 16, aged 74, of coronary thrombosis.

Lilly, Edward Ⓜ Shirley, Mass.; Tufts College Medical School, Boston, 1925; for many years medical examiner for the 10th Middlesex District; veteran of World War I; attending physician at the Shirley Industrial School for Boys; associated with the Ayer (Mass.) Community Memorial Hospital and Clinton (Mass.) Hospital; died Aug. 17, aged 58, of cancer of the larynx.

McAuliffe, William Joseph Jr., Snyder, N. Y.; Long Island College of Medicine, Brooklyn, 1934; veteran of World War II; died May 3, aged 49, of coronary heart disease.

McCoy, Earl Marcus Ⓜ Grand Ledge, Mich.; Detroit College of Medicine, 1902; veteran of World War I; served as health officer of Grand Ledge; at one time medical superintendent of the Michigan State Sanatorium for Tuberculosis in Howell; associated with the St. Lawrence Hospital in Lansing; died Aug. 21, aged 76, of arteriosclerotic heart disease.

McMillan, John Ezra, Fitzgerald, Ga.; Atlanta School of Medicine, 1912; on the staff of the Ben Hill County Hospital; died Aug. 4, aged 72, of coronary thrombosis.

Moran, William Grayson Ⓜ Cranberry, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1920; died Aug. 3, aged 62, of myocardial infarction.

Moser, William Calvert, St. Petersburg, Fla.; George Washington University School of Medicine, Washington, D. C., 1907; an associate member of the American Medical Association; formerly practiced in Morgantown, W. Va.; member of the West Virginia State Medical Association; past-president of the Monongalia County (W. Va.) Medical Society; died in the Hospital Division of the Veterans Administration Center, Bay Pines, Aug. 8, aged 76, of nephritis.

Moulton, John Henry Ⓜ Rangeley, Maine; Medical School of Maine, Portland, 1914; died July 31, aged 68, of myocardial infarction.

Murray, John Watts Ⓜ Warsaw, Mo.; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1910; died in the Bothwell Hospital, Sedalia, Aug. 11, aged 78, of pulmonary embolism and arteriosclerotic heart disease.

New, James Legrand, Lake Mahopac, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York City, 1892; an associate member of the American Medical Association; died July 22, aged 87.

Nimer, Melvin Arthur Ⓜ assistant surgeon, U. S. Public Health Service Reserve, Staten Island, N. Y.; University of Utah College of Medicine, Salt Lake City, 1956; interned at the U. S. Public Health Service Hospital in Seattle; service member of the American Medical Association; resident at the U. S. Public Health Service Hospital, Stapleton; stabbed to death Sept. 2, aged 31.

O'Brien, Daniel Patrick, Torrington, Conn.; born in Torrington Feb. 25, 1894; Johns Hopkins University School of Medicine, Baltimore, 1920; served as medical officer on Admiral Richard E. Byrd's expedition to the North Pole in 1926; in 1927 joined the Rockefeller Institute for Medical Research in New York City and retired in 1947 as administrator of the medical science and research division; from his headquarters in Paris traveled for the foundation to scientific and research centers throughout Europe; received a British medal for services to medical education and the promotion of international relations between medical men; died in Acapulco, Mexico, Aug. 16, aged 64, of diabetes mellitus.

Quimby, Adoniram Judson, New York City; Ohio Medical University, Columbus, 1905; also a graduate in pharmacy; an associate member of the American Medical Association; member of the American Roentgen Ray Society; specialist certified by the American Board of Radiology; associated with the New York Polyclinic Medical School and Hospital; died in St. Barnabas Hospital Aug. 24, aged 83.

Ray, John B., Leaksville, N. C.; Baltimore Medical College, 1898; member of the Medical Society of the State of North Carolina; served as mayor of Leaksville and for many years a member of the school board; served as chairman of local Selective Service Board during World Wars I and II; chairman of the county public health board; president of the Home Savings and Loan Association; vice-president of the Leaksville Bank & Trust Company; died in the Tri-City Hospital Aug. 13, aged 82.

Rehbock, Donald Jacob Ⓜ Los Angeles; University of Pennsylvania School of Medicine, Philadelphia, 1930; formerly on the faculty of Western Reserve University School of Medicine, Cleveland; specialist certified by the American Board of Pathology; veteran of World War II; member of the American Association of Pathologists and Bacteriologists, and the American Society of Clinical Pathologists; founding fellow of the College of American Pathologists; on the staff of St. Francis Hospital in Lynwood, Calif.; died in the Good Samaritan Hospital Aug. 2, aged 54, of metastatic carcinoma of the prostate.

Richardson, Lawrence Lafayette Ⓜ Simpsonville, S. C.; Atlanta Medical College, 1894; for many years mayor; past-president of the Greenville County Medical Society; for 20 years chairman of the board of trustees of the public schools; died Aug. 9, aged 91.

Saulpaugh, Lincoln Moses, Vero Beach, Fla.; Columbia University College of Physicians and Surgeons, New York City, 1920; an associate member of the American Medical Association; formerly practiced in New York City, where he was for many years associated with the Morrisania City Hospital; fellow of the American College of Surgeons; died in the Indian River Memorial Hospital Aug. 8, aged 63, of cerebral thrombosis.

Scully, Robert Emmet, Somerville, N. J.; University of Virginia Department of Medicine, Charlottesville, 1918; served on the staff of the Veterans Administration Hospital in Lyons; veteran of World War I; died in Trenton (N. J.) State Hospital Aug. 6, aged 83.

Siegfried, Joseph Howard Ⓜ Lacon, Ill.; University of Illinois College of Medicine, Chicago, 1936; on the staff of the Methodist Hospital of Central Illinois; died in the Peter Bent Brigham Hospital, Boston, Aug. 11, aged 49.

Simmons, William Arthur, Tower Hill, Ill.; Barnes Medical College, St. Louis, 1905; veteran of World War I; served on the staff of the East Moline (Ill.) State Hospital; died in Kirkwood Aug. 7, aged 79, of valvular heart disease.

Stern, Adolph, New York City; Columbia University College of Physicians and Surgeons, New York City, 1903; served as vice-president of the American Psychoanalytic Association; member of the American Psychiatric Association; past-president of the New York Psychoanalytic Institute; an associate member of the American Medical Association; died in the Lenox Hill Hospital Aug. 22, aged 79.

Truslow, Walter, Brooklyn; Long Island College Hospital, Brooklyn, 1895; an associate member of the American Medical Association; fellow of the American College of Surgeons; served on the faculty of his alma mater; member of the American Orthopaedic Association; at one time associated with New York Hospital for the Ruptured and Crippled, Brooklyn Jewish Hospital and Kings County Hospital; author of "Body Poise"; died Aug. 20, aged 87, of cerebral thrombosis.

Van Del, Dwight Tedcastle Ⓜ Kansas City, Mo.; Rush Medical College, Chicago, 1926; specialist certified by the American Board of Obstetrics and Gynecology; past-president of the medical staff at Menorah Hospital and a staff member of Kansas City General Hospital, Queen of the World Hospital, and St. Joseph Hospital; died in the Menorah Hospital Aug. 12, aged 58, of cancer.

Ward, John Hardin, Louisville, Ky.; University of Louisville (Ky.) Medical Department, 1904; veteran of World War I; died Aug. 2, aged 76, of a gunshot wound in the left chest, self-inflicted.

Webber, Henry Allen Ⓜ Colonel, U. S. Army, retired, White Hall, Md.; Harvard Medical School, Boston, 1896; service member of the American Medical Association; fellow of the American College of Surgeons; entered the regular Army in 1897; became a colonel in 1917; retired Nov. 16, 1928; died in Baltimore May 9, aged 87, of congestive heart failure.

Zavisca, Joseph Albert Ⓜ Buffalo; University of Buffalo School of Medicine, 1932; certified by the National Board of Medical Examiners; on the staffs of the Millard Fillmore, Buffalo General, and Kenmore Mercy hospitals; died Aug. 14, aged 51.

FOREIGN LETTERS

BRAZIL

Gastric Sarcoma.—According to Dr. Haroldo Sodré and co-workers (*Revista de Medicina e Cirurgia de São Paulo,* vol. 18, no. 3, 1958) reticular sarcoma of the stomach is rare and the clinical findings are indefinite even with the aid of radiology, cytology, and gastroscopy. It can be diagnosed exactly only by the pathologist. The long confused pathological conception of reticular sarcoma has become clear in the last few years. In the case reported the symptoms were atypical; roentgenograms taken July 11 and Aug. 9, 1957, suggested, respectively, carcinoma of the antrum and absence of mucosa at the level of the gastric antrum. Two gastroscopic examinations and the gastric cytology did not arouse suspicion of the presence of a reticular sarcoma. The diagnosis was established after the pathological examination had been made, and a subtotal gastrectomy with wide resection of the tumor was performed. As of March, 1958, the patient was in good general health.

INDIA

Multiple Sclerosis.—Laha and Johri observed a series of 16 patients with multiple sclerosis between 1954 and 1956 (*Journal of the Association of Physicians of India,* vol. 6, July, 1958). The total number of neurological patients seen in this period was 494, thus giving an incidence of multiple sclerosis among neurological diseases of 3.2%. The age of the patients varied from 16 to 50 years, 10 being under 35. There was no evidence of a hereditary factor. A precipitating factor (possibly coincidental) was found in two—childbirth in one and an attack of typhoid in the other. The onset was insidious in 14 and sudden in 2. All gave a history of remissions. Spastic paraplegia was the commonest manifestation, being seen in 11. Only one had hemiplegia. Charcot's triad was found in four. Nystagmus was present in 11 patients, but the jelly nystagmus was seen on ophthalmoscopy in only one. Two patients showed Romberg's sign; two had euphoria; and one had fully established compensated mitral stenosis, but this association was incidental.

Hepatic Cirrhosis.—I. J. Pinto and co-workers treated patients who had advanced hepatic cirrhosis with packed erythrocyte transfusions. Although most patients with hepatic cirrhosis do well on a high-protein diet, a few develop symptoms of portal-systemic encephalopathy which disappear when the protein content of the diet is reduced, while if concentrated proteins are given intravenously, there is a likelihood of loading the circulation with fluid and electrolytes. Packed cells can be used as a concentrated protein low in sodium as they contain 25 to 30% of hemoglobin which consists of 4% hemin moiety and 96% globin moiety. Six patients who had hepatic cirrhosis with ascites were given such transfusions after preliminary investigations and a period of stabilization of 15 to 30 days in hospital. The patients were weighed daily, and hemoglobin and plasma protein estimations were made weekly. They were kept on the routine hospital diet supplying 2,418 calories and containing 80.5 Gm. of protein, 335.5 Gm. of carbohydrate, 74.2 Gm. of fat, and 1.46 Gm. of sodium.

For transfusion, either the type-specific cells were used after cross matching or packed erythrocytes of group O blood were used; 200 to 300 ml. of such packed cells diluted with 100 ml. of 5% dextrose solution were given intravenously not later than six hours after separation from the plasma. These transfusions were repeated at intervals of 7 to 14 days, each patient receiving 1,300 to 2,000 ml. of packed cells. The effect on the clinical condition, especially the mental state, ascites, and serum proteins was observed. A marked improvement was seen in all patients except one with disappearance of ascites and edema. Three patients also showed marked loss of weight. No mental symptoms developed during treatment. The hemoglobin level showed a gradual increase in patients who responded, but none developed polycythemia. The serum globulin showed a fall after an initial rise, while the serum albumin started rising later after the globulin had come down to normal. No reaction to transfusion was seen in any of the patients. The results were, on the whole, comparable to those obtained with a high-protein diet.

Antidiuretic Factor and Ascites.—Berry and Sur (*Journal of the Association of Physicians of India,* vol. 6, July, 1958) stated that many workers have shown the role of antidiuretic factors in the pathogenesis of edema. The authors studied the role of such factors in 22 patients with ascites and 3 normal subjects. Their investigations included the total urinary output, complete hemogram, urinalysis, estimation of serum proteins, liver function tests, and examination of the ascites fluid. Transplenic portal venography was done in some cases if portal hyper-

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The items in these letters are contributed by regular correspondents in the various foreign countries.

tension was suspected and barium swallow fluoroscopy of the esophagus, esophagoscopy, and proctoscopy were performed to detect the presence of varices. Liver biopsy was performed in a few cases. The antidiuretic substances in the urine were studied by the method of Noble and others, using rats. The series included 13 patients with hepatic cirrhosis, 2 with subacute nephritis, 2 with cardiac cirrhosis, 2 with tuberculous peritonitis, 2 with kwashiorkor, and one with polyserositis and congestive cardiac failure. The presence of antidiuretic factors in the urine could be demonstrated in all subjects except the normal controls and those with tuberculous peritonitis. The serum protein level was below normal in most, but there was no correlation between the degree of hypoproteinemia and the delay in diuresis produced in rats. A fair degree of correlation was noted between the degree of oliguria and the degree of ascites, except in some patients with hepatic cirrhosis. Five of these who were investigated for the presence of portal hypertension gave positive results.

The causative factors in the production of ascites in hepatic cirrhosis are probably portal hypertension, diminished colloid osmotic pressure due to hypoproteinemia, and the action of antidiuretic factors. Portal hypertension by itself has been shown to be unable to produce ascites, but, acting with hypoproteinemia and antidiuretic factors, it leads to localized retention of fluid in the peritoneal cavity. The increased antidiuretic activity in hepatic disease may be due to the diminished inactivation of antidiuretic factor, which is believed to be the normal function of the liver. The presence of antidiuretic substances in cardiac cirrhosis could be also due to liver damage, but its presence in patients with subacute nephritis is difficult to explain and may be due to hypoproteinemia leading to liver damage. In patients with ascites due to inflammation, as in tuberculous peritonitis, there was no increase in antidiuretic activity, but this was seen in the patients with polyserositis in whom, although the ascites was of inflammatory origin, the superimposition of congestive cardiac failure could be responsible for the presence of antidiuretic factor in the urine.

Ferrous Succinate for Hypochromic Anemia.—Parekh and Rane (*Journal of the Association of Physicians of India,* vol. 6, July, 1958) treated 32 patients who had hypochromic anemia (16 medical and 16 antenatal) with ferrous succinate. Each tablet contained 150 mg. of ferrous succinate or 35 mg. of metallic iron. Patients with iron deficiency anemia whose hemoglobin was below 10.5 Gm. per 100 ml. were selected. The investigations included determination of hemoglobin photometrically, erythrocyte count, packed cell volume, icteric index, blood protein estimation, bone marrow examination, and, when necessary, stool examination and a roentgenogram of the chest. Each patient received one tablet three times a day, children receiving a smaller dose. The average initial hemoglobin content in this group was 8 Gm. per 100 ml. The efficacy of the drug was judged on the basis of the mean daily rise of hemoglobin. Most patients showed a satisfactory response both clinically and hematologically, the mean hemoglobin rise per day being 1.06%. The medical patients showed a higher daily rise than did the antenatal and children responded better than adults. Six patients showed a poor response, and, of these, two had tuberculosis and one had untreated ankylostomiasis. There were no side-effects in any of the patients. Even children tolerated the drug well, except for one who developed staining of the teeth. The daily rise in hemoglobin level was greater when the initial level was low. The rise was more rapid in the beginning and became slower after a certain level was reached.

Serum Proteins in Hepatic Cirrhosis.—Misra and Bajpai (*Journal of the Association of Physicians of India,* vol. 6, July, 1958) studied the electrophoretic pattern of serum proteins in 36 patients with hepatic cirrhosis. The total serum protein levels were lowered in all patients. The serum albumin level was lower than normal and the alpha globulin level was raised in 72% of the patients, the alpha 2 globulin level being raised more frequently than the alpha 1 globulin fraction. The beta globulin level was raised in only two patients who showed evidence of biliary obstruction in the form of jaundice and a raised serum alkaline phosphatase level. It was below 9% in two patients who were in the terminal stages of hepatic failure. The gamma globulin level was raised in most patients. All these changes were more marked in those with than in those without ascites. The ascitic fluid contained a higher percentage of albumin than did the serum. The lowering of the albumin level was due to deranged hepatic function, the liver being its normal organ of synthesis while various factors might be responsible for the rise in gamma globulin. Thus it might indicate antibody response and might partly be due to incomplete disposal of gamma globulin or greater production of this fraction by the spleen which was increased in size in most patients with hepatic cirrhosis.

NORWAY

Antitobacco Campaign.—In a series of articles in *Aftenposten,* on the campaign against the misuse of tobacco, Professor Roald Opsahl reviewed the medical evidence against smoking. As a result of a meeting held in Stockholm in 1956 the government forbade the sale of tobacco to minors; 0.1% of the state's revenue from tobacco was earmarked for research into the ill-effects of tobacco. The Swedish

National Association against tobacco has a Norwegian counterpart with the title "Away with Tobacco." With a membership of over 1,500 and a periodical entitled *Pure Air*, it held a meeting last summer and passed certain resolutions, one of which advocated the prohibition of advertisements of tobacco in cinemas, the press, and elsewhere. These resolutions were presented to the Norwegian government, and a sympathetic reply was made by the Health Directorate.

Endarterectomy for Peripheral Arterial Insufficiency.—At the Oslo City Hospital, the surgical treatment of peripheral arterial insufficiency has of late been the object of the cooperation of a surgeon, internist, and radiologist. The surgeon, Dr. Carl Semb, reported on a series of 43 men and 10 women who had such operations as endarterectomy for lesions often due to arteriosclerotic changes in the lower limbs (*Tidsskrift for den norske lægeforening*, Aug. 1, 1958). Growing experience has led to a widening of the indications for operation, so a presentation of the patients operated on in the past two or three years cannot be taken as a guide to the selection of patients in the future. In 43 patients the operations were on the superficial femoral and popliteal arteries and in 13 on the iliac artery and the lower part of the aorta. The list of postoperative complications was surprisingly small, with only one death directly after the operation (uremia after amputation of one leg for gangrene). The immediate results of endarterectomy are encouraging. Though the author could not predict the ultimate results, he believed he would be justified in continuing this method of treatment.

UNITED KINGDOM

Gray's Anatomy.—The centenary is being celebrated of the publication of the first edition of Gray's Anatomy. In a review in the *British Medical Journal* of the recently published 32nd edition, Zachary Cope said that textbooks, like human beings, seldom live for 100 years. When they do, as in the case of Gray's Anatomy, it is because the original author hit on something which was urgently needed and the successive editors kept well in view the original purpose and faithfully adhered to it. In the preface to the first edition Henry Gray clearly stated his purpose, which was "to furnish the student and practitioner with an accurate view of the anatomy of the human body, and more especially the application of the same to practical surgery." With that intent he made many dissections, and his friend Vandyke Carter sketched several hundred of them for insertion in the new book. The publishers' records were destroyed in the war, but it is thought that about a million copies have been sold. Henry Gray was elected a Fellow of the Royal Society when he was only 25. He died after the publication of the second edition in 1860, when he was 34.

Suspended Animation.—At the meeting in Glasgow of the British Association for the Advancement of Science, Dr. A. S. Parkes said that long-term preservation of living cells by freezing was possible. Rats, mice, and dogs could be revived after being cooled to the freezing point and after heart beat and respiration had been arrested for an hour or more. Rats so treated showed no impairment of memory or learning capacity. At 0 C (32 F) the artificially cooled mammal has every appearance of being dead and by all clinical criteria is dead; yet, under appropriate conditions, it can be revived. To the biologist death is the state from which resuscitation of the body as a whole is impossible by any currently known means, but as knowledge increases the means of resuscitation will extend, so that what constitutes death today will not necessarily constitute death tomorrow. Victims of cold and exposure might sometimes be prematurely regarded as dead. Whether resuscitation in such cases, if it could be effected, would be justifiable in view of the possibility of permanent damage, is debatable, but the work on experimental animals suggests that this hazard is not as great as once thought. It has been found that the golden hamster could be resuscitated undamaged after cooling to −5 C (23 F) or freezing to the extent of crystallizing 50% of its body water. The process of biochemical disintegration after arrest of heart beat and respiration is slowed down but not stopped by cooling to 0 C. For long-term preservation in the frozen state much lower temperatures will be necessary. The induction of suspended animation at −80 C (−112 F) will no doubt necessitate the pretreatment of the mammal with some such substance as glycerol at a concentration which, according to present knowledge, is highly toxic.

Aspiration of Food and Vomitus.—An editorial in the *British Medical Journal* of Aug. 30 discusses a report by A. M. N. Gardner in the *Quarterly Journal of Medicine* (vol. 27, p. 227, 1958). Gardner directed attention to cases of unexplained death and complications that may have been due to aspiration. This is most likely to occur in infants and patients coming out of anesthesia. For infants, the aspiration of a large quantity of milk may be immediately fatal, particularly if they are feeble. Even repeated small aspirations may give rise to a variety of complications depending on the nature of the material aspirated. In anesthetized patients aspiration of the contents of the stomach is still a major cause of death. A full stomach, so common in labor, with pharyngeal and esophageal sphincters paralyzed by relaxants and reflexes depressed with barbiturates, is particularly conducive to regurgitation and aspiration.

The evidence that aspiration had occurred before death, even though perhaps agonal, rather than after death, is usually taken to be the presence of gastric contents in the bronchi and lungs at autopsy. To test this belief, Gardner placed barium sulfate in the stomach immediately after death. Radiographs taken at autopsy 24 to 48 hours later showed barium in the lungs in 7 of 10 bodies. The validity of such a fundamental means of proof as autopsy has therefore been shaken, and for this evidence to be acceptable in the future, measures must have been taken immediately after death to prevent postmortem gravitation of gastric contents into the lungs. Gardner went on to investigate the frequency with which aspiration takes place in life. Barium was placed in the drinks of patients after abdominal operations. In 10% barium reached the lungs. That this was due to aspiration of food and not vomitus was shown by the rarity of the occurrence when the drinks were placed in the stomach by tube. The diagnosis that aspiration has occurred in these circumstances is just as difficult during life as it is after death. Staining of the sputum, coughing after drinking, pyrexia, tachycardia, and hypotension are all suspicious findings.

Aspiration is a hazard of illness rather than of health and is particularly likely to occur in the feeding of recumbent patients who are old, ill, and perhaps narcotized. Prevention lies in insisting on drinking being done in a sitting position only. If this is impossible the common hospital feeding-cup appears to need redesigning, or drinking through a straw might be substituted for it. Gardner points out that the shape of the spout of the standard hospital feeding-cup enables fluid to be poured into the mouth and down the trachea of a recumbent patient, and the hooded top, by concealing from him both the quantity and orientation of the fluid, insures that he is taken by surprise. In the surgical wards aspiration is probably responsible for some cases of postoperative chest disease, and in the medical wards it may emerge as an important factor in some common pulmonary diseases. Outside the hospital, aspiration may kill the feeble infant in its cot, the heavy feeder intoxicated with alcohol on his couch, and the epileptic in the street. Any case of otherwise unexplained death should be suspect and aspiration as a factor carefully excluded, but if the diagnosis of aspiration is to be made at autopsy Gardner's work should be borne in mind.

Juvenile Delinquency.—Recent racial clashes were seen as part of the cause of increase in juvenile delinquency by experts at the annual meeting of the British Association for the Advancement of Science. At the moment colored people are apparently being singled out. Dr. R. G. Andry, senior clinical psychologist, St. Thomas's Hospital, London, thought that fathers who would not play a positive role in the family were the villains of the piece. Maternal deprivation was not all-important in causing delinquency. Many and possibly most fathers look on the training of the children as the mother's responsibility. Dr. Andry advocated schools for fathers where they could learn to play a more positive role in the family. He found that fewer children, among both delinquents and others, were going to church.

Health of Executives.—An attack is to be launched on the stress and other health hazards to which business executives are increasingly exposed. The aim is to make life more tolerable for the men and women who direct industry and commerce. The work will be done by a new medical research unit set up by the Institute of Directors. Industrial medicine is now well established but most of it has dealt with the problems of the worker. Little serious thought has been given to the health problems of the overworked executive. The British plan, wholly scientific in conception, will start by attempting to demonstrate the facts statistically, to define the causes and effects of the hazards to which executives are susceptible, and to find ways to overcome them. The project will start with an examination of health records to decide the health experience of executives and the risks to which they are exposed. Due allowance will be made for the fact that every man over 50 is somewhat abnormal. He cannot be expected to be as fit and full of energy as the 20-year-old. Flying has increased the strain on businessmen in that sometimes elderly men are transported within hours from bitter cold weather in Britain to the heat of the tropics, with little time for bodily adjustment to the sharp climatic change and the loss of the relaxation of a sea voyage. The strains imposed by "hospitality" will also be examined. The burden of too many heavy meals and too much alcohol, as businessmen meet and maintain contact with clients, has been underlined by several physicians in recent years.

Doctor Is Fined.—Dr. M. G. Lucas, 58, who was stated by his counsel to have "lived in torment" and became a drug addict to relieve suffering and pain, was fined a total of $910, after admitting to 13 charges of giving prescriptions for meperidine and diverting the drug to his own use. Arrangements were made for his hospitalization. Dr. Lucas had been in practice for about 23 years. He had been unable to get an assistant in his practice. He had tried to retire but the Ministry of Health would not permit this until he was 60. As a medical practitioner he said he considered that in 10 to 15 years meperidine would no longer be considered a dangerous drug.

CORRESPONDENCE

"FLAT FILM"

To the Editor:—I enjoyed the argument against the term "flat film" of the abdomen presented by Arnold and Washko in the June 7, 1958, issue of The Journal, page 773. Of course, the term should be banned. It is stated that there is no corresponding term in German. There is one: *Leeraufnahme,* meaning a film made without the use of an introduced contrast medium (*leer,* meaning empty; *Aufnahme,* meaning a photographic picture). This word was widely used in the 1920's and 1930's in Breslau, where I had my training. I am certain that it occurs often in the radiologic literature of that period and I am sure it is still in wide use. I have not followed today's German roentgenologic literature closely, but I cannot imagine why it should have fallen into disuse. It is a good descriptive word that plainly says what it means to say. Commonly, it was used for the scout film taken before injection of excretory urographic mediums; if one wanted a similar exposure for other reasons and with a modified technique, one so ordered, e. g., *Leeraufnahme im Stehen,* meaning scout film with patient standing.

Heinrich Lamm, M.D.
Harlingen
Texas.

BIRTH WEIGHTS

To the Editor:—An interesting editorial on "Optimal Birth Weights" appeared in The Journal (167:470 [May 24] 1958). The New York City Department of Health, in collaboration with the physicians of the city, is actively probing problems such as those mentioned in the editorial. The wholehearted cooperation of the physicians in New York City in supplying to the department of health detailed information about deliveries has made possible numerous studies of obstetric problems that could not otherwise have been undertaken. One of these studies relates to the question of optimal birth weight raised in the editorial. The department of health in New York City found that the best weight (i. e., that for which perinatal mortality was lowest) occurred at 3,000 Gm. for males and 2,880 Gm. for females (Baumgartner and others, *Pediatrics* 6:329-342 [Sept.] 1950). For whites the optimum birth weight was determined as 2,990 Gm. as compared with 2,830 for nonwhites.

The influence of a possible difference in mean gestation periods for whites and nonwhites was raised in the cited paper, too. The data for that study were based on 1939-1940 experience. Since then reporting of weight information has improved. Moreover, following the Baltimore pattern, we are now asking physicians to supply the LMP date rather than length of gestation in weeks. As a result, 23% of live births are now calculated to have occurred at 40 weeks of gestation; whereas under the former method when length of gestation in weeks were reported, 64% or more of the live births were indicated as occurring at this specific gestation interval. This fact also relates to the editorial remarks in The Journal.

We intend to repeat the study of 1939-1940 with data for a more recent period. The better information now available should improve the precision of the data and permit its extension to an investigation of the influence of a possible difference in mean gestation periods for the various ethnic groups in the city. It will be useful clinically, if we can demonstrate that such differences in mean gestation periods actually exist for the various ethnic groups.

Leona Baumgartner, M.D.
Commissioner of Health
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ANOXIA AND HYPOXIA

To the Editor:—An informative editorial, "New Facts About the Heart," appeared in The Journal (167:1504 [July 19] 1958). The achievements of Burns, Robson, and Smith deserve the high level of such recognition, but I was etymologically disturbed by the repeated use of the word anoxia in the review of their work. To those interested in cardiopulmonary physiology the use of the word anoxia when hypoxia is meant has the same anachronistic connotations as the use of auricular fibrillation for atrial fibrillation. Anoxia and hypoxia are not synonymous and interchangeable; it is doubtful that a state of anoxia or complete absence of oxygen ever occurs in any tissue, alive or dead. Hypoxia is a reduction in the normal levels of oxygen saturation. This is not a play on words but a definitive change in concept concerning gas metabolism not only in space medicine but in cardiopulmonary function. Since editorial comment in The Journal is now accepted as a "summit opinion" throughout the entire medical and scientific world, the selection and choice of words carries a burden of responsibility above and beyond that of any other publication. This is not intended to be a criticism of editorial policy but merely an attempt to point out the authoritative implications inherent in every Journal statement.

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BUSINESS PRACTICE

This is the third in a series of excerpts from the brochure on the Business Side of Medical Practice, prepared by the American Medical Association in cooperation with the Sears-Roebuck Foundation.

LEGAL HURDLES AND PROFESSIONAL ASSISTANCE

A physician needs a legal green light in the form of necessary licenses before he can open his office door to his first patients. Because medicine concerns itself with life and health, each state makes sure its medical men are properly qualified by licensing all physicians.

Normally, licenses are obtained from a board of physicians appointed by a state's governor to sit as an examining body. Such boards are most familiar with medical education programs within the state. Consequently, oral questions and basic science tests given applicants correspond closely to medical school curriculums in that state.

A physician who wants to practice in a state other than the one in which he trained may have to take additional examinations or meet other requirements. Every state has its own rules and regulations; some even require a doctor to pass a written basic science examination prior to taking a licensure test. Some states have reciprocity agreements with other states and may grant a license on the basis of a satisfactory examination given in another part of the United States. The National Board of Medical Examiners, a voluntary unofficial examining agency, awards a certificate to any graduate of an approved medical school who passes a special three-part examination. This certificate can simplify the process of securing a license in another state, since it is recognized by all states except Arkansas, Florida, Georgia, Indiana, Louisiana, Michigan, North Carolina, and Texas.

Because licensure requirements are so different, it is best to find out as soon as possible how to secure a license to practice. The American Medical Association will supply information on licensure regulations and dates on which licensing examinations are given in various states.

Physicians also must obtain a federal narcotics license, and some states require a license to dispense hypnotic drugs regularly. Others require professional or occupational licenses as well (see table).

Contacting the Medical Society

An early call at the offices of the state medical society and the county medical society is a wise action for a physician who decides to practice in a given area. He will receive a great deal of valuable information and assistance on how to proceed with establishing and building his practice. To help new M.D.'s, some societies have worked out detailed checklists of "things to do in opening a practice," right down to the last detail regarding licenses, necessary county and state forms, and federal regulations.

He will also receive information about the general range of medical fees in the locality, so that he can build his own fee schedule, and he will find out the customary ways of announcing a practice. He can inquire about becoming a member of the local medical society—learn about hospital privileges and how to secure them. This information will save him time and trouble, help him get started on the right foot with his colleagues, and aid in establishing a pleasant relationship with other physicians which probably will continue for many years.

Membership in medical organizations at local, state, and national levels pays rich dividends, especially to the physician just starting out in practice. Regular society programs, special conventions, and scientific publications help him pursue his postgraduate education. Through his membership in these organizations, he can keep abreast of the social, economic, and legislative developments affecting medicine and health and he can actively participate in public service programs, such as night and emergency call services and health education projects which benefit his patients. A good doctor conscientiously accepts the obligation to participate in medical organizations for his patients' as well as his profession's sake. He wisely takes advantage of the many services they make available to him.

Leads on Licenses

Medical license: Obtained by examination from state board of medical examiners; National Board of Medical Examiners certificate, awarded on basis of special examination, endorsed by many states; in some states, basic science exams must be taken, others have reciprocity agreements; find out from A. M. A. how to get license; post your license in your office

Federal narcotics license: Obtained by filing with Office of the Director of Internal Revenue; some states supply narcotics prescription blanks on request; narcotics licenses must be reregistered before July 1 each year; notify Director of Internal Revenue immediately if you move your office

Hypnotic drug license: Required in some states, such as California, for regular dispensing of hypnotic drugs; check to see if this is required in your area

Professional or occupational license: Required in some areas, check with city or county clerk for information

Zoning permit: Required in some cities for locating medical office in some areas of community

Announcing a New Practice

Ethically, a physician does not advertise for patients but builds his practice in dignified ways in keeping with the ideals of his profession. Yet, he must have some means of announcing to the public and to other doctors that he has established an office and offers his services. Every community has its own customs and its own ideas about the proper way for a physician to announce his practice. In some places stories in the local newspaper are considered proper; in others, newspaper notices are considered in bad taste. Some medical societies designate the type and size of permissible sign a physician may use outside his office.

The county society can tell a new physician about local customs in this regard, even to the way in which physicians place their listing in the local phone directory. The society also will inform him of local practices regarding mailings announcing the opening of a medical office to physicians or patients and often suggest ways he can build his practice speedily. Avoid inadvertent actions flaunting local custom by checking with the medical society first.

Hospital Privileges

A physician's office practice is strengthened and stabilized with proper hospital privileges. It is important to the new physician to determine the various kinds of privileges available to him.

Once again, the county medical society can give a good idea of the types of hospital privileges available. A call on the hospital administrator and the hospital's chief of staff will provide the specific information needed. A physician may be accorded an appointment to "active service" on the hospital staff, with maximum responsibility relating to medical policy and corresponding demands on his time, or he may be offered "consulting privileges," "courtesy privileges," or "temporary privileges." Each hospital establishes its own qualifications for staff membership on the advice of its own staff members, so types of privileges will vary.

Local Public Health Obligations

Every community and state places certain obligations upon physicians in regard to public health matters. As a rule, when a physician is called in a case involving violence, he is obligated by law to inform the authorities. In the case of death by suspected violent or unlawful means, the doctor is not allowed to sign a death certificate. In routine deaths the physician should sign the certificate as soon as is reasonably possible so that legal burial may take place. In most states it is illegal for a physician to take the responsibility of sending a corpse to an undertaker unless he has been authorized by the next of kin or person responsible for funeral expenses.

A physician is obligated to local and state boards of health to report births, deaths and designated "reportable" diseases. He must also abide by quarantine regulations and in most communities must report results of premarital examinations for venereal diseases. Some states require detailed reports of stillbirths and births out of wedlock. In other states, occupational diseases must be reported within 10 days or two weeks. A great deal of useful medicolegal information, as well as a booklet of various legal forms used regularly in the doctor's office, may be obtained from the A. M. A. Legal Department.

MEDICAL FILM REVIEWS

Psychiatric Nursing: The Nurse-Patient Relationship: 16 mm., black and white, sound, showing time 35 minutes. Produced in 1958 by Dynamic Films, New York. Procurable on loan from ANA-NLN Film Library, 267 W. 25th St., New York, or Smith, Kline and French, Medical Film Center, 1530 Spring Garden St., Philadelphia 1.

The purpose of this film is to teach principles in psychiatric nursing, with emphasis on the importance of the therapeutic nurse-patient relationship in the care and treatment of the mentally ill. It is not intended to give a comprehensive picture of every role, function, or activity of all nursing personnel. Instead, it emphasizes some significant aspects of constructive nurse-patient relationships that favor the recovery and return to the community of a patient in a psychiatric hospital. In several instances, the nurse's acceptance of patient behavior is brought out and the nurse is helped to understand her own reactions and feelings and their importance in relationship to the patient. The main topic of the film is to help the nurse understand that she, as a person, can help a mentally ill patient bridge the gap from her own world to reality. This film is recommended for basic nursing programs and also in advanced nursing at the graduate level; it may also be of interest to resident physicians in psychiatry.

Biliary Duct Atresia: 16 mm., color, sound, showing time 11 minutes. Prepared by Julian A. Sterling, M.D., Philadelphia. Produced in 1957 by and procurable on loan ($3) or purchase ($60) from Ralph Lopatin Productions, 1920 Chestnut St., Philadelphia.

This film presents a treatment for biliary atresia. The infant is a few weeks old and immediately after birth presented a picture of increasing jaundice. During the operation, needle biopsies of the liver were taken; the frozen sections revealed a nondevelopment of the intrahepatic bile ducts. The surgical therapy devised is one in which an external biliary fistula is formed by the insertion of 10 silver needles into the liver lobes, mostly into the right. Roentgenograms and postoperative photographs are shown up to the 10th postoperative day. This would be more convincing if the living baby were shown months or years after surgery. At the present time, this operation is highly experimental. One might criticize the excessively long fingernails of the anesthetist shown intubating the infant. Since this picture deals with such a specialized and experimental problem, it cannot be recommended for practical audiences or as a teaching film. Its value would be in the realm of experimental surgery.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Parathyroid Crisis: A Cause of Sudden Death. J. S. Hewson. A. M. A. Arch. Int. Med. 102:199-203 (Aug.) 1958 [Chicago].

The 38-year-old man whose history is presented complained of nausea, vomiting, constipation, and a 17-lb. weight loss over a 4-week period. He had noted the onset of progressive easy fatigue 5 years prior to admission. He had been subject to severe intermittent lower abdominal pain, resembling renal colic, for 2 or 3 years. During the 6 months prior to admission, he had consumed at least 2 or 3 qt. of milk daily. A 1-cm. nodule was palpated in the region of the right lower lobe of the thyroid. In the afternoon of the day of admission some basilar rales were noted bilaterally, and the patient appeared slightly cyanotic. Later, while a consulting physician was talking with him, the patient suddenly stopped breathing and became pulseless. Cardiac massage and the intracardiac administration of epinephrine effected only transient impulses. At autopsy a large, spherical, well-encapsulated mass, measuring 5 cm. in diameter, was noted to be confluent with the right lower parathyroid gland. On microscopic examination of this mass, the typical histological pattern of a parathyroid adenoma was found, involving proliferation of chief cells with variations to the water-clear cell type. There was also some evidence of old hemorrhage. There were multiple areas of calcium deposition and secondary inflammation in the kidneys. Bone sections contained many areas of osteoclastic bone resorption, with fibrosis around trabeculae. An early confluent pneumonia was present and a moderately congested liver.

This case history is typical of the 22 previously reported instances of parathyroid crisis. In all the reported cases, an acute episode was superimposed on chronic hyperparathyroidism, evidenced by kidney stones or metastatic calcium deposits and bone changes. Kidney stones or calcium deposition may precede bone changes by several years. Since in the present case, in addition to the long history, there were renal calcifications and early osteitis fibrosa, one may assume that the patient also had chronic hyperparathyroidism. All but 3 of the 23 reported cases of parathyroid crisis were due to a parathyroid adenoma. Of these 3 cases, one was caused by overdosage with parathyroid extract; another was due to a parathyroid carcinoma; and the third was reported as frank hyperplasia. The acute phase of hyperparathyroidism, parathyroid crisis, is uncommon; it is easily misdiagnosed and may prove rapidly fatal. It is characterized by an acute exacerbation of the signs and symptoms of chronic hyperparathyroidism, with a precipitous rise in serum calcium and eventually in serum phosphorus levels. The critical level of serum calcium seems to be 17 mg. per 100 cc. A high calcium intake and/or immobilization may precipitate the crisis in a patient with hyperparathyroidism. Surgical intervention offers the best chance of survival at present, although the use of chelating agents for temporarily lowering the serum calcium level may prove an effective means of treatment in the future.

Idiopathic Hypoparathyroidism: Report of a Case. G. Halvorsen and J. G. Arbo. Tidsskr. norske lægefor. 78:628-630 (July 1) 1958 (In Norwegian) [Oslo].

The criteria for the diagnosis of idiopathic hypoparathyroidism are hypocalcemia, hyperphosphatemia, chronic tetany, normal renal function, no intestinal dysfunction, exclusion of osteomalacia, and positive Ellsworth-Howard test. In the case reported, in a man aged 64 years when first seen in 1952, all the criteria were fulfilled except one: the renal function was not normal. The renal disorder was believed to have developed recently and was possibly secondary to the main disease. From all indications the' patient had had latent tetany with sporadic attacks for more than 20 years. The bilateral cataract which he had had for several years was operated on in 1952 with good result. Treatment with calcium and calciferol resulted in normalization of the mineral metabolism and marked clinical improvement. The condition has been diagnosed as idiopathic hypoparathyroidism, which is often mistaken for epilepsy. The postoperative form of hypoparathyroidism has been excluded. At present, 16 months after discharge, the patient is far more capable of work than could have been expected at the start of treatment. He

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The place of publication of the periodicals appears in brackets preceding each abstract.

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has a zest for life and says that he has not been so well for more than 20 years. Urine and blood are controlled regularly, and maintenance treatment with calcium and calciferol is given.

The Endoscopic Treatment of Parenchymal Tuberculosis (A Pilot Study in the Human). A. A. Carabelli. Dis. Chest 34:162-180 (Aug.) 1958 [Chicago].

The author explored a new approach to the chemotherapy of parenchymal tuberculosis in 18 consecutive patients with pulmonary tuberculosis of various types and degrees of severity, who underwent endobronchial instillation of an oily suspension of isonicotinic acid hydrazide as a pilot experiment. All the patients underwent bronchoscopy, and the secretions obtained directly from the infected lobe or lobes by a special tubercle bacillus collector were studied by smear, culture, and guinea-pig inoculation, whenever possible. The instillation of the drug suspension was carried out with the aid of laryngotracheobronchial anesthesia and various techniques including the standard bronchoscope, an optical catheterizing bronchoscope, and bronchography. Routine complete filling of all 5 lobes was performed at the same sitting after the known diseased lobes had been filled. Most of the lobes of the lung usually tolerated 10 cc. of the suspension containing 500 mg. of isoniazid. In general, 1 to 4 instillations were required, spaced at 20-day intervals, and a total of 71 instillations were made. All but 2 of the patients received concomitant isoniazid therapy with conventional doses by mouth.

Of 14 patients whose aspirates were positive before the instillation, 12 (86%) turned negative. The average time required for conversion was 96 days. Roentgenologic examination revealed complete clearing of visible lesions in 10 (59%) of the 18 patients and complete closure of cavities in 10 patients (100%) with cavitation. The average time required for clearing of the lesions as well as closure of the cavities was 55 days. Weight gain varied from 2 to 29 lb. (0.9 to 13.2 kg.) in 14 patients; 2 patients neither gained nor lost weight, and 2 patients with diabetes mellitus lost 6 and 10 lb. (2.7 and 4.5 kg.) respectively. The isoniazid suspension was well tolerated by the parenchyma and by the host with the exception of a transient pneumonitis which occurred soon after the introduction of the suspension into the lobe. With the exception of a slight rise in temperature, systemic reactions or symptoms did not occur. Follow-up for an average period of 14 months showed that the clinical and roentgenologic results obtained were permanent.

These observations suggest that with the new portal of therapy the conversion rate becomes high and is obtained in rather short intervals. Complete disappearance or improvement of the lesions in the chest roentgenograms as well as cavity closure occurs oftener and within shorter time intervals than with conventional oral administration of antituberculous drugs alone. Isoniazid in oily suspension introduced endobronchially, has a pronounced specific lytic action on tuberculous foci. The medication and the technique of its administration are safe and free from any detrimental effects on the parenchyma or undesired constitutional effects. Lobar or multilobar drug saturation is proposed as a new concept in the chemotherapy of pulmonary tuberculosis.

ACTH-Producing Tumor of the Pituitary Gland. D. H. Nelson, J. W. Meakin, J. B. Dealy Jr. and others. New England J. Med. 259:161-164 (July 24) 1958 [Boston].

The association of adrenal hyperplasia with basophil tumors of the pituitary gland was first suggested by Cushing. This type of tumor has since been thought to be at least one cause of adrenal cortical hyperfunction (Cushing's syndrome), but no demonstration of elevated levels of corticotropin (ACTH) has been reported in the plasma of patients with this condition. The authors present a patient who, 3 years after bilateral adrenalectomy for hyperadrenocorticism, was found to have a chromophobe tumor of the pituitary that was secreting large quantities of corticotropin. The tumor could not be suppressed completely by the intravenous administration of hydrocortisone, as had been observed in other patients with adrenal insufficiency. The tumor also appeared to produce large quantities of chromatophore-stimulating hormone. After removal of the tumor the plasma corticotropin activity was not detectable, but 3 weeks postoperatively, and after additional irradiation of the pituitary gland, this activity was again demonstrated. Four months after operation plasma corticotropin activity had shown no further increase and had remained in a range that is considered normal for a patient who has undergone adrenolectomy. This case suggests the possibility that adrenalectomy acted as a stimulus to corticotropin secretion and production of a pituitary adenoma.

Pulmonary, Eventually Lethal Complications of Asian Influenza (Staphylococcus aureus) and Its Treatment. S. Moeschlin. Schweiz. med. Wchnschr. 88:655-662 (July 5) 1958 (In German) [Basel, Switzerland].

Moeschlin states that in influenza pandemics, which extend at intervals of every 30 or 40 years over the entire world, the virulence of the disease increases either gradually or suddenly. The severe or fatal cases occur chiefly during the later part of the epidemic or during a second malignant wave. This was observed in a number of places during the recent pandemic of Asian influenza. The author presents observations on the treatment of seriously ill patients, particularly those with pulmonary complications, and on the results of a prophylactic vaccination. Among 238 employees of a hospital who had been vaccinated against influenza, only 18 contracted influenza, whereas of 35 who were not vaccinated, 16 contracted the disease. Of 33 patients who were hospitalized with influenza pneumonia, 13 died, but in 2 of these death was due to another cause. Autopsy on patients who had died of pneumonia, or of acute fibrinous laryngotracheobronchiolitis, revealed the existence of a superinfection with Staphylococcus pyogenes var. aureus (sometimes combined with streptococcic and pneumococcic infections). These superinfections had been observed also by other investigators.

Patients with preexisting reduced pulmonary capacity seemed to be particularly threatened. These included patients with asthma, sarcoid of Boeck, silicosis, tuberculosis, kyphosis, severe emphysema, and pulmonary resection, as well as those with decompensated heart and diabetes mellitus. Patients with pulmonary complications should be treated early with tetracycline Achromycin) and streptomycin, and those with severe toxicity should be treated with erythromycin and novobiocin (Albamycin) which act particularly on staphylococci. These drugs should be employed in combination with prednisone and hydrocortisone. The author emphasizes that in patients with hemorrhagic fibrinous laryngotracheobronchiolitis caused by staphylococci, who have inspiratory stridor, an early prophylactic tracheotomy with bronchial cleansing is of vital importance.

Synthesis and Metabolism of Radioactive Heparin. H. B. Eiber and I. Danishefsky. A. M. A. Arch. Int. Med. 102:189-193 (Aug.) 1958 [Chicago].

This report is based on a 3-year biochemical and clinical study of heparin, the synthesis, metabolism, and fate of which have been an enigma for years. Heparin has been employed in the treatment of thrombosis. In addition to its anticoagulant action, it has been found to effect the clearance of lipemic plasma. It inhibits certain enzymes, is also involved in radiation sickness, and has been claimed to be effective in the treatment of frostbite. Heparin is a normal constituent of the animal organism, the highest concentration being found in the liver and the lung. It is a sulfated mucopolysaccharide, having a number of structural features in common with hyaluronic acid and chondroitin sulfuric acid. The exact chemical structure of heparin is still open to question; however, the most probable structure appears to be a repeating tetrasaccharide unit.

In order to solve the problems of biosynthesis, use was made of isotopic tracers. It was found that radioactive heparin could be isolated from animals to which radioactive glucose (C^{14}) had been previously administered. This indicated that glucose is involved as a precursor in the biosynthesis of heparin. In a similar manner, administration of radioactive sodium sulfate (S^{35}) resulted in the formation of radioactive heparin containing S^{35}, indicating that sulfate is also a building block for heparin biosynthesis. In other words, the intact living organism is capable of synthesizing heparin from glucose and inorganic sulfate. It appears that the optimum dosage for an adult of 150-lb. weight is 50 mg. every 4 hours when given intravenously. Larger doses would not proportionately increase the heparin effect and are unwarranted. The intramuscular route necessitates a slightly higher dosage schedule. Heparin is a normal constituent of blood in concentrations of 0.5 mg. per 100 cc.

SURGERY

Surgery of Duodenal Ulcer. R. H. Smithwick. Am. J. Gastroenterol. 30:145-160 (Aug.) 1958 [New York].

The author studied the effect of various operations for duodenal ulcer on the gastric acidity of 42 patients, as judged by the incidence of achlorhydria under fasting or basal conditions, in response to stimulation by a food substance (beef broth) and in response to vagal stimulation induced by insulin hypoglycemia. Of the 42 patients, 16 underwent posterior gastroenterostomy combined with vagotomy and only 4 (25%) of them were achlorhydric. Three (50%) of 6 patients who had the distal one-third of the stomach removed in order to eliminate the antral factor and who also had a vagotomy were achlorhydric. Eight (80%) of 10 patients who had the distal one-half of the stomach removed and who underwent vagotomy were achlorhydric in the early postoperative period, and the same result was obtained in 8 of 10 patients who had a subtotal gastrectomy and vagotomy. These results suggested that removal of less than one-half of the stomach, when combined with vagotomy, would not give a high enough incidence of achlorhydria to duplicate the protection against recurrent ulcers which a subtotal gastrectomy alone affords. Also, it did not appear that removing more than one-half of the stomach, when combined with vagotomy, increased the incidence of achlorhydria.

The physiological and clinical results in 55 patients having a hemigastrectomy combined with resection of the vagus nerves were then compared with those in 70 patients having a subtotal gastrectomy and vagotomy. With the passage of time, the incidence of achlorhydria in the 55 patients increased to 84% and compared favorably with an incidence of 66% in the 70 patients. Postoperative secretory studies were performed in the course of a 6-year postoperative follow-up period on 182 patients subjected to a subtotal gastrectomy and on 115 patients subjected to a hemigastrectomy and vagotomy. Of the patients subjected to a subtotal gastrectomy, 76 were studied for 1 or 2 years postoperatively and 106 were studied for 2 to 6 years; 36% of the 76 patients had free hydrochloric acid and 39% of the 106 patients had free hydrochloric acid. Of the patients subjected to a hemigastrectomy and vagotomy, 14% of the 87 patients who were studied for 1 or 2 years postoperatively had free hydrochloric acid and 4% of the 28 patients who were studied for 2 to 6 years had free hydrochloric acid. The longer these patients were followed, the higher became the incidence of achlorhydria. These findings suggest that there may be a gradual decrease in the secretory activity of the parietal cells with the passage of time after a hemigastrectomy and vagotomy.

A hemigastrectomy combined with vagotomy is a very satisfactory operation for the treatment of duodenal ulcer and is the author's procedure of choice. The evidence presented suggests that it will stand the important test of time. Although a longer period of observation is needed to establish this as a fact, the high incidence of achlorhydria, which appears to be increasing with the passage of time, suggests that patients who undergo this operation are rarely going to have recurrent peptic ulcers in the late postoperative period. Poor clinical results are rare, while excellent and good clinical results predominate. The incidence of severe or distressing postoperative symptoms is lower than after a subtotal gastrectomy. The results of a hemigastrectomy combined with vagotomy thus more closely approximate the ideal—cure of the ulcer, prevention of its recurrence, and leaving the patient asymptomatic—than those of any other operation for duodenal ulcer.

Cancer of the Stomach After Gastric Resection for Peptic Ulcer. R. Cote, M. B. Dockerty and J. C. Cain. Surg. Gynec. & Obst. **107**:200-204 (Aug.) 1958 [Chicago].

A clinicopathological review was made of 17 cases studied with emphasis on the pathological characteristics of the patients' stomachs at the time of resection. The series included 5 patients with carcinoma of the gastric stump, in whom resection was performed for peptic ulcer, and 12 patients with gastric cancer after simple excision of an ulcer usually with gastroenterostomy. The ulcers were usually single, gastric in location, and they appeared as ordinary chronic ulcers. None of the 5 resected stomachs that were available for study presented the picture of giant hypertrophy of the mucosa. The microscopic picture of the stomachs was characteristic; severe gastritis or duodenitis was evident in the wall surrounding the lesion. A precancerous lesion was not present in the proximal portion of any of the 5 stomachs studied. In 2 cases the interval between the evidence of gastritis and the development of cancer was 17 and 25 years respectively; in 1 case of moderate gastritis it was 12 years; and in 2 cases, in which the mucosa was normal, the interval was 6½ and 9 years respectively. The malignant lesions included sarcoma (1), hemangioendothelioma (1), and adenocarcinoma (15), the latter usually being located at the line of anastomosis in the patients who had undergone resection and in the lower part of the stomach in the others. The small number of cases available suggests that cancer of the stomach rarely develops in patients who have been treated for peptic ulcer either by gastric resection or by excision of the ulcer.

On 44 Interventions with Opened Heart under Extracorporeal Circulation. C. Dubost, P. Blondeau, C. Lenfant and others. Semaine hôp. Paris **34**:1759-1770 (June 18) 1958 (In French) [Paris].

The authors report a study on the use of extracorporeal circulation in the repair of 10 different cardiac defects in 44 patients operated on at the Marie Lannelongue Surgical Center in Paris. Eighteen patients were treated surgically with the Lillehei heart lung apparatus and the remaining 26 with the rotary disk oxygenator. Thirteen of the 44 patients died. Not a single death occurred among the 19 patients with interatrial communications, although a certain number of these patients had defects of the ostium primum type which necessitated plastic repair by means of Ivalon sponge. Other cases were complicated by abnormal pulmonary venous return and required plastic repair. The only deaths among the patients with pulmonary stenosis occurred in 4 patients with infundibular pulmonary stenosis, surgical treatment having been ineffective. The death rate was high among the patients with interventricular communications; however, the authors feel that, as experience with surgical treatment in these cases increases, less severe hemodynamic disturbances should result.

Control of Bleeding at Operation: A Trial of Adrenochrome Monosemicarbazone (Adrenoxyl). J. Calnan and F. L. F. Innes. Brit. J. Plast. Surg. **11**:87-96 (July) 1958 [Edinburgh].

The authors report the results of a blind controlled trial of adrenochrome monosemicarbazone (Adrenoxyl), which was carried out on 76 patients admitted to the Nuffield department of plastic surgery of the Churchill Hospital in Oxford, England. The trial was made in an attempt to assess the value of Adrenoxyl as a hemostatic agent. Each of 39 patients received 15 mg. of the drug by mouth and 1.5 mg. by intramuscular injection before operation, and 25 mg. by mouth after operation.

Dummy preparations were given to the remaining 37 patients. Results showed that Adrenoxyl had no effect on the amount of bleeding at operation.

GYNECOLOGY & OBSTETRICS

Sex Chromatin in the Cell Nucleus and Hormonal Treatment of Mammary Carcinoma. P. N. Ehlers and H. A. Hienz. Arch. klin. Chir. 288:485-498 (No. 5) 1958 (In German) [Berlin].

When women with carcinoma of the breast are treated with male sex hormones, some respond very favorably, whereas others do not respond at all, or the growth of metastases may even progress. In these latter cases treatment with hormones of the same sex may result in improvement. The authors used the determination of the sex chromatin body of the cell nucleus on carcinomas of the breast and on carcinomas of the prostate. They had available for study paraffin-embedded breast carcinomas from 41 women and prostate carcinomas from 10 men. It was found that in two-thirds of the women the sex chromatin in the cells of the tumor corresponded to that of the patient, whereas in the other third it was different. Thus there are women with "female" breast tumors and with "male" breast tumors. In a few cases it was possible to examine the epidermis as well as the underlying tumor for the sex chromatin. The sex chromatin in the epidermis always corresponded to the sex of the patient, but this was not always the case with the tumor. In contradistinction to mammary tumors there was never any difference in sex between the tumor and its host in the cases of prostatic tumor.

The case histories of the women with breast carcinoma were reviewed and it was found that when women were treated with male sex hormone (testosterone) those with "female" breast carcinoma responded much more favorably than did those with a "male" carcinoma. When treatment with testosterone was omitted, women with a "male" carcinoma generally had a more favorable course than those with a "female" carcinoma.

The Present Potential of Exfoliative Cytology in the Detection of Cervix Cancer. J. W. Berg and G. M. Bader. Cancer 11:758-764 (July-Aug.) 1958 [Philadelphia].

A series of 65,000 screening examinations were reviewed in order to assess the potential of cytology in cancer detection. In the years 1950-1955 there was a 72% possibility that later cytological material would be forthcoming from any women who had been given an annual examination, thus the authors were permitted not only to check the sensitivity and accuracy of their cytological diagnoses but to obtain cumulative cytological material from patients in whom cancer was expected to develop while they were under observation. When atypical cells were found on smears from the cervix directly or the vaginal pool, they were classified as follows after having been referred to physician cytologists for diagnosis: (1) indication for immediate biopsy; (2) findings needing clarification by additional smears; and (3) no indication for repeat examination until next annual visit. Of the 108 asymptomatic cervix cancers found in patients between 1948 and 1956 only 9% had a lesion that suggested biopsy at the time of examination before cancer was detected by cytology, the remaining 91% having negative findings on careful routine pelvic examination. The percentage (13%) was similar in those new patients who developed detectable cancer between clinic visits.

An error rate of 2 to 4% is ascribed to cytologists of moderate experience, while the screening error is somewhat higher (6.5%), bringing the total diagnostic laboratory error to approximately 10%. When this diagnostic error is interpreted from the standpoint of the patients and the increased mortality due to such errors it is of note that by the end of 3 years only 1 case in 1,000 would have been missed by annual cytology alone, and at the end of 5 years the error rate of 1 per 100,000 cancers is far less than the 1 missed case in the whole country every year. This error becomes increasingly smaller with repeat examinations since the data suggest that the average in situ cancer exfoliates diagnostic cells for 8 or more years before it becomes invasive. About 90% of the patients with early stage 1 invasive lesions may expect a 5-year survival. Thus, the only women who need fear cancer are those few whose cancers are so atypical that they will escape recognition on 10 or more cytological smears, and when cervical cytology is included in an annual examination of cancer-free women, deaths from cervix cancer should be almost wholly preventable.

The Treatment of Tuberculous Salpingitis. Å. Rydén. Acta obst. et gynec. scandinav. 37:114-130 (No. 2) 1958 (In English) [Stockholm].

The author reports on 122 women with tuberculous salpingitis who were treated at 2 Swedish hospitals between 1947 and 1957. Of 47 patients with antecedent extrapulmonary tuberculosis, 34 had tuberculous peritonitis, 4 had tuberculosis of the kidneys, 1 had intestinal tuberculosis, and 8 had tuberculosis of the bones and joints. Eighty-three patients had adnexal mass as revealed by palpation, and 39 did not have it. Forty-seven patients were asymptomatic, 42 had pain, and 33 had menstrual disturbances. Antituberculosis drug therapy was given to all patients. The drugs used included streptomycin, aminosalicylic acid, amithiozone (Conteben), and isoniazid. Combined treatment with 300 mg. of isoniazid and 12 Gm. of aminosalicylic acid daily, using streptomycin only for preoperative and postoperative treatment when required, was found to be expedient. Antituberculosis drug therapy was followed by surgical treatment in 55 patients. Of 30 patients who received antituberculosis drug therapy for 4 to 6 months followed by partial or complete removal of the fallopian tubes, 17 did not show any evidence of tubal lesions on microscopic examination of the surgical specimen, but tuberculous tubal lesions persisted in the remaining 13. Some of the 13 patients were asymptomatic. In none of the patients treated conservatively did intrauterine pregnancy occur. Of 2,118 women with genital tuberculosis whose cases were collected from the literature and who were treated conservatively, intrauterine pregnancy proceeding to term occurred in 48. Since both tubes may be occluded in 50 to 70% of patients with tuberculous salpingitis at the time of diagnosis and since antituberculosis drug therapy resulting in cure of the tuberculous tubal lesion is not likely to achieve also patency of the tubes, it may be assumed that intrauterine pregnancy follows antituberculosis therapy in 30 to 50% of the patients in whom one or both tubes are patent at the time of the institution of the treatment.

The introduction of antituberculosis drugs, inhibiting the growth of tubercle bacilli, marks an outstanding advance in the treatment of genital tuberculosis in women. In those patients who require surgical treatment, preoperative and postoperative antituberculosis drug therapy lessens the operative risk and lowers the incidence of postoperative complications. Antituberculosis drug therapy alone will probably result in cure of tuberculous salpingitis if it is given for a period of 1 year or more. The present routine treatment for 6 months is generally too short to result in cure of tuberculous salpingitis. Surgical treatment combined with preoperative and postoperative antituberculosis drug therapy should be the routine method of treatment of patients with tuberculous salpingitis unless drugs may be discovered which are superior to those now in use. Women with asymptomatic genital tuberculosis in whom roentgenologic examination shows 1 or both tubes to be patent should be given first a trial of antituberculosis drug therapy alone, because those in whom this treatment is successful have a chance of conceiving and bearing a live child. The tuberculous lesions may, however, cause lasting infertility in most patients.

Acute Salpingitis: Views on Prognosis and Treatment. E. Hedberg and S. O. Spetz. Acta obst. et gynec. scandinav. 37:131-154 (No. 2) 1958 (In English) [Stockholm].

The authors report on 216 women with acute salpingitis who were treated between 1946 and 1953. Ninety-six patients had gonorrheal salpingitis with positive cultures of gonococci obtained from the cervix, the urethra, or the rectum. The remaining 120 patients were classified as having septic salpingitis. All patients had reached puberty and menopause had not yet occurred in any. The average age of the patients with gonorrheal salpingitis was 26 years, and that of the patients with septic salpingitis was 28 years. Unmarried women predominated in the group with gonorrheal salpingitis, and most women in the septic group were married. About 60% of all the patients had had previous abortions or deliveries. The onset of salpingitis occurred at the time of menstruation in 65 patients (68%) with gonorrheal salpingitis and in 46 (38%) of those with septic salpingitis. Septic salpingitis occurred in 28 patients (23%) with abortions or intrauterine instrumentation, but gonorrheal salpingitis occurred in only 6 such patients (6%). Fever or rigors occurred in 63 (52%) of the septic group and in 69 (72%) of the gonorrheal group. Nausea and vomiting were frequent symptoms and menstrual disorders, mainly menometrorrhagia, occurred in 30% of all the patients. Unilateral or bilateral adnexal swellings occurred in 80% of the patients. Pathological adnexal tenderness was observed in 15 (13%) of the patients with septic salpingitis and in 21 (22%) of those with gonorrheal salpingitis. The erythrocyte sedimentation rate was increased and exceeded 20 mm. in 1 hour in about 90% of the patients, and it exceeded 40 mm. in 1 hour in 45%. The high erythrocyte sedimentation rates predominated in the septic group.

All patients with gonorrheal salpingitis received adequate antibiotic treatment with 800,000 I.U. of a combined preparation of benzathine, potassium, and procaine penicillin G (Astracillin) for 5 days. Only 13% of the patients with septic salpingitis were treated with sulfonamides and 22% received 2 cc. of a combined preparation of procaine penicillin G and dihydrostreptomycin (Streptopenin) twice a day for 5 days. Patients who on admission had reached the subacute or chronic stage, did not receive this treatment. The average duration of hospitalization was 40 days for the patients with septic salpingitis and 26 days for those with gonorrheal salpingitis. One hundred ten patients (92%) with septic salpingitis and 71 (74%) of those with gonorrheal salpingitis were followed up. Relapses requiring rehospitalization, occurred in 10 patients (9%) with septic salpingitis and in 11 (15%) of those with gonorrheal salpingitis. Ten patients with septic salpingitis and 4 with gonorrheal salpingitis required surgical treatment during the follow-up period because of severe residual lesions. The effect of antibiotic therapy completely depends on the length of time which elapses between the onset of symptoms and the institution of treatment, and the immediate and late prognosis also depends on this interval. The effect of antibiotic therapy on acute salpingitis concerning subsequent pregnancy in these patients as compared with that in patients previously reported on by other workers, consisted in notable improvement. Among the 181 patients who were followed up, the incidence of pregnancy was 30%. After corrections for voluntary sterility, age above 40, and marital status, the incidence of pregnancy for the entire series was 60%. The effect of antibiotic therapy concerning subsequent fertility was most pronounced in the patients with gonorrheal salpingitis. A supplementary examination by hysterosalpingography in 30 patients with gonorrheal salpingitis performed on discharge from hospital showed tubal patency in 24 (80%) of them.

DERMATOLOGY

The Long-Term Results of the Treatment of Early Syphilis. L. Chargin, N. Sobel, J. E. Vandow and T. Rosenthal. Acta. dermat.-venereol. 38:168-172 (No. 2) 1958 (In English) [Stockholm].

The authors report the results of long-term observations on 72 patients, 29 of whom had primary syphilis and 43 had secondary syphilis, who were given a minimum of 20 arsenical and 20 bismuth injections at the clinics of the New York City Department of Health. Some patients received as many as 50 arsenical and 50 bismuth injections. The minimum post-treatment observation period was 5 years, but in many patients it was up to 10 years. The final status of these patients was as follows: 18 (62%) of the 29 patients with primary syphilis were seronegative and 11 (38%) were seropositive; 27 (63%) of the 43 patients with secondary syphilis were seronegative, the remaining 16 (37%) were seropositive. None showed any abnormal physical findings. Positive spinal fluid findings indicative of asymptomatic neurosyphilis were found 1 to 5 years after treatment in 8 of the 72 patients. The over-all cure rate was 62%.

In 1946 when penicillin became available, the New York City Department of Health began to use it in the treatment of syphilis. Fifty patients, 27 with primary syphilis and 23 with secondary syphilis were treated with 6 to 9 million units of penicillin alone and were followed up for 5 to 11 years. Of the 27 patients, 24 were found to be clinically and serologically negative; 3 patients were still seropositive, although physical examination gave negative results. Of the 23 patients treated, 15 were clinically and serologically negative; 7 were serologically positive, although they were negative on physical examination. One patient had asymptomatic central nervous system syphilis. The reported data prove that in early syphilis penicillin is by far the most effective and safest remedy for producing a cure, as well as preventing the late damaging manifestations of the disease.

Pemphigus Seborrheicus (Senear-Usher Syndrome, Pemphigus Erythematosus). L. Chargin, H. Silver and P. M. Sachs. Acta dermat.-venereol. 38:137-144 (No. 2) 1958 (In English) [Stockholm].

The authors report on a 58-year-old man with a syndrome combining features of pemphigus, lupus erythematosus, and seborrheic dermatitis. An eruption consisting of isolated erythematous patches, varying in size from a bean to a penny, some crusted, some scaly, and some suggesting bullae, appeared in 1955 after a sunburn. The lesions were at first limited to the chest. A year later they appeared on the face and scalp. There were no subjective symptoms present. The patient has been well controlled with corticosteroid therapy and there have been intervals of almost complete freedom from eruption. A positive Nikolsky sign could be elicited. The patient's general health remained good. Laboratory tests including blood cell count, urinalysis, and chemical examination of the blood showed no abnormal findings. The histological examination showed dilated superficial vessels and about them a focal and diffuse reaction composed of small, round, and wandering connective tissue cells. There were also some polymorphonuclear leukocytes and eosinophils and these were particularly evident in the lumen of the papillary capillaries. In the upper epidermis, in the area of the granular layer, eosinophils were also present. On the surface, some areas showed crusting with numerous polymorphonuclear leukocytes. These findings were essentially those seen in pemphigus.

In 1926 Senear and Usher reported 11 cases of a syndrome similar to that observed in this patient. The variability of the clinical picture of the Senear-Usher syndrome has led to a variety of interpretations of the affection. The diagnosis in many patients cannot be made solely on clinical grounds. However, the type of lesion, the location, the course, and particularly the help furnished by the pathological findings make a diagnosis possible in most of them. The pathological features in most patients are essentially those of pemphigus. The conclusion seems warranted, therefore, that Senear-Usher syndrome is, in fact, a form of pemphigus with special features. The special features are the location of the eruption in seborrheic areas, thus the term pemphigus seborrheicus is to be preferred.

THERAPEUTICS

Anticoagulation Treatment. P. A. Owren. Tidsskr. norske lægefor. 78:571-578 (June 15) 1958 (In Norwegian) [Oslo].

All anticoagulant treatment is in its nature prophylactic and should be introduced at an early stage. Permanent anticoagulant treatment affords protection against renewed embolization in patients with rheumatic heart disease, considerably reduces the mortality in myocardial infarction, and has a marked prophylactic effect in angina pectoris if the interval between diagnosis and treatment in angina pectoris is less than a year. The treatment has little if any effect on the mortality in patients with angina pectoris of more than 2 years' duration before treatment. Seventeen patients with rheumatic heart disease who had had recurrent thromboembolic episodes before treatment were given anticoagulation treatment for an average of 3.2 years; only 1 embolic episode occurred during the treatment. In a control group of 17 patients observed for the same length of time 20 recurrent major episodes were seen. No episode occurred in 15 patients who had had anticoagulation treatment for an average of 3 years after the first embolic episode. In the 308 patients with myocardial infarction on permanent anticoagulation treatment for an average of about 3 years the average annual mortality was 4.85%, which is about half the mortality in similar untreated groups. Comparison of the survival curves of the treated group and control groups showed 85% survival in the treated group as against 50-55% in the control groups. In the 471 patients with angina pectoris treated for an average of about 3 years the average mortality was 3.5% annually, less than one half the mortality in similar groups not given anticoagulant treatment.

ANESTHESIA

Electroencephalography as an Objective Method of Controlling the Depth of Anesthesia. A. N. Bakulev and S. N. Efuni. Khirurgiya 34:21-26 (No. 6) 1958 (In Russian) [Moscow].

One of the most important problems in anesthesiology is the objective evaluation of the action of anesthetics. For that purpose the authors employed electroencephalographic control of the depth of anesthesia. Twenty-six patients were observed under ether anesthesia. Regular changes of cerebral biocurrents were detected, depending on the stage of anesthesia. It was noted that the changes are found in the electroencephalographic curve before it is possible to detect any clinical signs. A case is presented of an overdose of ether, which was registered by the electroencephalographic method much earlier than it was manifested clinically. At times disorders in the anesthetic apparatus were promptly removed as a result of timely electroencephalographic signals. This method is valuable and has future possibilities, especially in the employment of relaxants.

PUBLIC HEALTH

Serological Response of Infants to Poliomyelitis Vaccine. F. T. Perkins, R. Yetts and W. Gaisford. Brit. M. J. 2:68-71 (July 12) 1958 [London].

Eighty-eight mothers and infants were investigated in order to determine the relationship between maternal serum and umbilical cord levels of poliomyelitis neutralizing antibodies, the rate of loss of maternally transmitted antibodies in the infants, and the response of the infants immunized at different ages with poliomyelitis vaccine. The infants were first immunized at 1, 6, and 10 weeks respectively. Only 4 infants were triple negative, having no antibodies to any of the 3 types, while 55 had antibodies to all 3 types. With all 3 types the titers of the cords and mothers' serums were similar. The loss of the maternal antibodies was similar for each type in each age group. Approximately 70% were lost at 6 weeks, and 90% at 10 weeks, suggesting that the maternal antibody level was halved every 21 days. Only a small proportion of the infants responded to the vaccine, 12.5% responding to type 1, 47% to type 2, and 36% to type 3. The degree of response on the part of the infants was proportional to the decrease in the maternal antibody level. The latter effect varied somewhat according to type. With type 1 no infant with a maternal antibody titer greater than 1:16 responded, whereas a response was given by 10 of the 32 infants with a titer of less than 1:16. With type 2 no infant with a titer greater than 1:512 responded, although a response was elicited in 40 infants with a titer less than 1:512, and with type 3 no infant with a titer greater than 1:64 responded, whereas a response was forthcoming in 32 of 58 infants with a titer of less than 1:64.

A consideration of all age groups reveals that, for all 3 virus types, the older the infant the greater the number with lower maternal antibody levels at the time of vaccination. As the proportion of infants with low maternal antibody levels increased, there was a corresponding increase in the proportion of infants responding to immunization. This increase was not entirely due to the concomitant decline in the maternal antibody levels but appeared to a certain extent to be a function of age, as in the case of types 1 and 3 where the older infants gave a much better response to vaccination. No such pattern of response was evident with type 2. In order to avoid the inhibiting effect of the maternal antibodies, it is suggested that immunization be delayed until 6 to 9 months after birth, although it is not certain whether the response to types 1 and 3 will be adequate even at this age. Studies are in progress to determine the earliest age at which the response to all 3 types will prove satisfactory.

BOOK REVIEWS

Skin Grafting. By James Barrett Brown, M.D., Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, and Frank McDowell, M.D., Associate Professor of Clinical Surgery, Washington University School of Medicine. Third edition. Cloth. $15.00. Pp. 411, with 334 illustrations. J. B. Lippincott Company, E. Washington Sq., Philadelphia 5; 4865 Western Ave., Montreal 6, Canada; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W. C. 1, England, 1958.

This excellent textbook has been completely revised. More is included than the title implies. Actually, it deals with the methods and application of the closure of surface defects arising from burns, traumatic avulsions, radiation injuries, and reconstruction of wounds after surgical removal of large tumors. Excellent chapters on the care of burns cover even the minutest detail. Different types of skin grafts and flaps are discussed. Methods of their cutting and application and their indications are shown. Special chapters deal with the repair of the hand and major joint injuries that involve skin or pedicle flap replacement. Repair of eyelid, orbit, neck, and nasal skin defects are well demonstrated. One chapter deals with homografts and a skin bank. Plastic surgeons are called on to remove many large benign and malignant skin tumors. Many of these have been complicated by injudiciously prolonged radiation therapy. All of these lesions must be removed surgically, and the authors show how the resulting defects can be reconstructed. This is an excellent reference book that should be useful to all plastic surgeons and other surgeons whose practices involve skin grafting procedures. It can also be recommended for all hospital medical libraries.

The Medical Assistant: A Guidebook for the Nurse, Secretary, and Technician in the Doctor's Office. By Miriam Bredow, Dean of Women, Eastern School for Physicians' Aides, New York. Cloth. $7.50. Pp. 430, with illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England; 253 Spadina Rd., Toronto 4, Canada, 1958.

This guidebook contains much of the material previously appearing in the author's book, "The Medical Secretary," but places greater emphasis on such duties as sterilization of instruments and equipment, physical therapy, laboratory techniques, special tests, principles of medication, and injection techniques. Several chapters are devoted to medical secretarial duties, such as maintaining medical and financial records, insurance, and office housekeeping. The author points out that, since about 75% of all physicians today employ one or more aides in their offices, an all-inclusive manual covering the entire range of situations in which the assistant may be called on to help the doctor in general practice, as well as in special fields, and in the laboratory and the x-ray department is needed. In addition to basic theoretical information, the volume attempts to teach an untrained medical assistant what to do, how to do it, and why it is done.

Garrè-Stich-Bauer Lehrbuch der Chirurgie. Vollig Neurbearbeitet von R. Stich, o.o. Professor fur Chirurgie an der Universität Göttingen, und K. H. Bauer, o.ö. Professor für Chirurgie an der Universität Heidelberg. Kapital Anesthesie von R. Frey, a.pl. Professor fur Anaesthesiologie an der Universität Heidelberg. 16./17. edition. Cloth. 78 marks. Pp. 934, with 670 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1958.

This is an authoritative work, brought up to date by surgeons of mature experience and known technical ability. It encompasses the entire field of surgery. The fact that this is a 17th edition bespeaks its popularity. All previous editions appeared prior to World War II, after which many new techniques and surgical procedures came into use. The text is preceded by an introduction on the history of surgery. The subject matter includes general traumatology, general surgery of the locomotor apparatus, and general aspects of tumor pathology. While this is a textbook on general surgery, the specialties insofar as they come under the observation of the general surgeon have not been neglected. Extraneous, controversial, and theoretical matters have been eliminated. The authors have endeavored to present only the essentials of the practice of surgery in its modern aspects. The young surgeon and even advanced surgeons should find here an excellent medium for gaining current knowledge of accepted practice. The illustrations are excellent, the bibliography comprehensive, and the paper and binding of the splendid quality characteristic of the publisher's reputation. This work is highly recommended to all who understand German.

First Aid for Your Infant and Child. By Eric Northrup. With introduction by Morris Fishbein, M.D. Cloth. $3.95. Pp. 320, with illustrations by Dan Noonan. Henry Holt & Company, 383 Madison Ave., New York 17; George J. McLeod, Ltd., 73 Bathurst St., Toronto 2B, Canada, 1958.

Almost encyclopedic in nature, this volume covers virtually every accident and sickness situation that could occur in the home or community. Suc-

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

cinct advice is given on first-aid measures appropriate for specific situations, and there is special emphasis on the importance of evaluating the emergency before rushing in with some first-aid procedure just to be doing something. Part one deals with basic principles. The first chapter discusses the basic situation encountered when an emergency strikes. Another has a helpful discussion of how to prevent childhood accidents. First-aid implements are explained, with numerous helpful illustrations. General home care of the sick child is described, and there is a brief discussion of how to cooperate most effectively with the family physician. Discussions in the second part deal concisely with diseases and situations; these are listed alphabetically. The guidance can be considered sound and helpful, but there is some suggestion that the author has been tempted to aim at too extensive coverage. It is doubtful that such conditions as brucellosis or Q fever can be considered emergency matters or disorders with which parents can be expected to become familiar. Most recent thinking regarding "athlete's foot" has not been included. There is an excellent section on poisoning, good guidance regarding immunization, useful material on communicable diseases, and a wealth of sound advice on immediate care after a fracture or similar trauma. The volume should be of great value in the average home. Numerous helpful illustrations are included.

Clinical Orthopaedics. Number Eleven: Orthopaedic Surgery in the Geriatic Patient. Anthony F. DePalma, editor-in-chief. With assistance of associate editors, Board of Advisory Editors and Board of Corresponding Editors. Cloth. $7.50. Pp. 257, with illustrations. J. B. Lippincott Company, E. Washington Sq., Philadelphia 5; 4865 Western Ave., Montreal 6, Canada; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W. C. 1, England, 1958.

This volume in size and format is similar to the previous volumes in this series. Its seven articles deal in generalities, and there is nothing really new in them. The first chapter is a historical biography of James Knight; it covers his influence and direction in the formation of the Hospital for the Ruptured and Crippled. It is well written and makes interesting reading. The section on general orthopedics consists of 16 articles. Some of these are reviews, and some describe new operative procedures. One of the outstanding articles is the review of eccentro-osteochondrodysplasia. The chapter on juvenile osteochondrosis also deserves praise. The section labeled "Items" consists of nine articles, most of them brief—some of them too brief and some of questionable value. In general, the reproduction of roentgenograms is not up to the usual standard of these volumes. Many of them are fuzzy, and their details are difficult to see. There are several typographical errors. This volume seems to be a little flat when compared to many others in the series, and it is hoped that future volumes will again be outstanding.

Handbuch der speziellen pathologischen Anatomie und Histologie. Herausgegeben unter Mitarbeit hervorragender Fachgelehrter von O. Lubarsch †, F. Henke †, und R. Rössle †. Band 13: Nervensystem. Herausgegeben von W. Scholz. Teil 2, Bandteile A un B: Erkrankungen des zentralen Nervensystems II. Bearbeitet von R. Bieling et al. Cloth. 859.50 marks. Pp. 1325; 1327-2902, with 565; 634 illustrations. Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1958.

A previous book of this series (THE JOURNAL, May 21, 1955, page 238) dealt with the pathological anatomy and histology of injuries and tumors in the central nervous system. The two books now presented are designated as part-volumes (Bandteile) A and B of the second part (Teil) of the 13th volume (Band) of the series. This explanation seems desirable for the sake of orientation in this gigantic series, which is planned to cover the entire field of special pathological anatomy and histology. Part-volume A deals with the pathological anatomy and histology of the nonspecific forms of meningitis, virus diseases of the central nervous system, multiple sclerosis, and the changes (especially in the brain) associated with intoxications, syphilis, and other systemic diseases. These sections are contributed by 28 authors, mainly in German, but the section on the general histopathological aspects of some viral encephalitides is in English, while the sections on encephalitis lethargica and on African trypanosomiasis are in French. Part-volume B consists of contributions by six authors, all in German, on changes of the central nervous system in diseases of the heart, lungs, kidneys, liver, and blood; funicular disease (subacute combined degeneration) of the spinal cord; kernicterus; reactions of the central nervous system to metabolic and endocrine diseases; nonartiosclerotic calcification of cerebral vessels; intoxication by exogenous and endogenous poisons; deficiency diseases; and chronic progressive bulbar paralysis, chronic progressive external ophthalmoplegia, and myotrophic lateral sclerosis. The style of the individual sections deserves comment, for it stands in welcome contrast to the ill-assimilated, incoherent citations of literature that have sometimes been published as reviews. The contributors have organized their material to make a readable textbook. The illustrations are numerous and of excellent quality. The bibliographic lists are exhaustive and accurate. There is an author index as well as a subject index, and both show signs of having been prepared with extraordinary care. These two volumes constitute a priceless summary of existing knowledge. They should be of lasting value in every library used by pathologists and neurologists.

QUESTIONS AND ANSWERS

OBESITY IN A YOUNG CHILD

To the Editor:—*A girl, aged 9½, is approximately 20 lb. (9.1 kg.) overweight, and there seems to be no way to control her weight gain. She is an only child and is "spoiled," and it is difficult to talk with her about her problem. A lot of her overeating is probably due to nervous tension. She was sent for four weeks to a girls' camp, with the idea that it would enable her to adjust to group living, but unfortunately the camp did not have a diet table for the junior members. Hence, she returned home weighing about what she did before. Appetite suppression methods, such as the use of phenmetrazine hydrochloride and other similar drugs, have been tried, but she will not take the medicament regularly. Neither will she stay on a reduction diet—both factors are no doubt due to a lack of firmness on the part of her parents. Are there any camps or institutions (not hospitals) where she might go to learn the rudiments of weight reduction? Putting her in a hospital would not be the solution, because immediately on discharge she would resume her previous overeating. As she approaches puberty she will no doubt want to lose weight, but that time is several years away.*

James L. Wade, M.D., Parkersburg, W. Va.

Answer.—This question is a relatively common one. Assuming that no endocrinopathy exists (this is a fair assumption from the description), it is assumed that her overweight is related to overeating, ascribed as "due to nervous tension." Usual dietary advice and appetite suppressing methods are notoriously unsuccessful in children. It is generally more appropriate to view the overeating as a symptom which is serving some psychological need of the child. It would, therefore, be somewhat inappropriate to focus directly on dietary limitation without attempting to provide an opportunity for the child to work through some of her problems relating to need for excessive food intake. In other words, if the child is pushed to relinquish the symptom before adequate preparation has been undertaken, it is conceivable that other psychological difficulties might occur which might be more formidable than that of overeating. For this reason, one would not look toward camps or institutions of any kind to really be effective unless a psychotherapeutic approach was incorporated into the program under the direction of qualified professional personnel. The alternative to the various questions raised concerning management would be directed toward having the child seen by a qualified child psychiatrist who would be in a position to provide an evaluation and, hopefully, therapy. Although in some geographic locations it is extremely difficult to obtain such consultation, it would be worth making the effort. This recommendation is emphasized, since the suggestion is made that as she approaches puberty "she will no doubt want to lose weight." This may be the case, but one not uncommonly sees an accentuation of the problem rather than an alleviation of it with the approach of puberty. In rare instances, the child approaching puberty reacts to obesity by the development of extreme anorexia, in the form of anorexia nervosa, which, if it occurs, is a more serious problem. While the latter is not a likely possibility, it underscores the importance of competent psychiatric consultation. It should also be stated that, although the parents are very interested in their child's problem and in alleviating it, they are also much too close to it to provide the objectivity and therapeutic help which is necessary. Probably the best comprehensive resource on this subject is the recent book of Hilda Bruch, "The Importance of Overweight" (New York, W. W. Norton & Company, Inc., 1957).

TREATMENT OF TEAR GAS EXPOSURE

To the Editor:—*What counteragents and alleviating measures should be used in the immediate treatment of the symptoms (lacrimation, asphyxia, and burns) caused by exposure to the released commercial tear-gas currently used by law-enforcement officials? What follow-up regimen is indicated in the subsequent handling of patients who have come in contact with this substance?*

Charles D. Humberd, M.D., Barnard, Mo.

Answer.—Ordinarily no treatment is required after exposure to the type of tear gas used by police. Even when the person remains in a contaminated atmosphere, the effects gradually disappear after about 15 minutes. The chief lacrimators act to destroy the sulphydryl enzymes of the eye. The transient effect probably is due to the renewal of these enzymes. Currently, a common tear gas is derived from a mixture of chloracetophenone, chloropicrin, and chloroform. Other lacrimator powders or liquids leading to gases are chloracetophenone, benzyl

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

bromide, bromacetophenone, benzal chloride, bromobenzylcyanide, methyl iodoacetate, ethyl acetate, chloropicrin, acrylic aldehyde, allyl disulfide, phenylcarbylamine chloride, and osmium tetroxide. Some of these are effective as lacrimators in concentration as low as 1:100,000,000. If exposure concentration is high, superficial corneal erosions and occasionally deep opacification of the corneal stroma and edema of the cornea may appear. Even so, no permanent disability is prospective. If the powder or liquid that leads to tear gas directly enters the eye, deep central corneal ulceration may occur and opacities may be a consequence. The mucosa of the respiratory tract may be irradiated, resulting in tracheitis and bronchitis. The rare fatalities have been attributed to pulmonary edema. All of the common lacrimator chemicals may act as skin irritants with the severity of response being in proportion to the concentration of exposure. If any treatment be in order after ordinary exposure to any tear gas, prompt and free lavage with water constitutes the initial step. When chloracetophenone is the offender, which is prone to be the case because of its wide availability for use, treatment may rely upon sodium sulphite, 0.4 Gm. in 25 cc. of water and 75 cc. of glycerine. The mild dermatitis may be expected to disappear with or without treatment, but wet dressings with boric acid may speed recovery. The asphyxia mentioned in the question relates to pulmonary edema, for which oxygen therapy may be required along with the judicious application of bronchodilators and measures conducive to dehydration.

LECITHIN IN THE DIET

To the Editor:—*Please give information on lecithin. Can one use too much?*

Alice S. Cutler, M.D., Los Angeles.

Answer.—Lecithin is a phosphatide. It is also called phospholipid, a descriptive term which implies a phosphorus containing lipid. There is an excellent book on the subject entitled "The Phosphatides," by Wittcoff (American Chemical Society Monograph 112, New York, Reinhold Publishing Corporation, 1951). The phosphatides are present in all living cells, both plant and animal; this suggests their importance in body economy. Because of lecithin's natural emulsifying properties and ready availability, one of its principal uses is as an ingredient in foods. Evidence of the safety of lecithin is found in the fact that it is included in standards of identity developed by the Food and Drug Administration for the guidance of the food industry. In a recent report, Morrison (*Geriatrics* 13:12, 1958) prescribed relatively large doses of lecithin, consisting of two tablespoons three times daily over prolonged periods. Fifteen of 21 patients tolerated this large dose, while in 6 it was necessary to reduce or to discontinue use of lecithin. For a long time, lecithin has been used in the United States and in Europe as a food supplement. The reasons are chiefly empirical in the sense that they are the result apparently of group experience reported from person to person by word of mouth over a period of years. At the present time, there is a great deal of scientific interest in the phosphatides and much research is in progress. While lecithin may be regarded as a completely nontoxic, wholesome food ingredient, it is probable, as in the case of all other food ingredients, that excessive use is undesirable. However, the possibility of using lecithin to excess is unlikely, due to its relatively high satiety value. When taken in excessive amounts it tends to cloy the appetite and even to induce nausea. This effect serves as a safety device.

ANTICOAGULANTS

To the Editor:—*When anticoagulants are being used constantly, do they produce any damage to body organs? Do antihistamines have any effect on the efficiency of the anticoagulant? Does aspirin have any influence on the prothrombin level when anticoagulants are being used?*

M.D., Illinois.

Answer.—No untoward effect of heparin has been observed other than hemorrhage. This is also true of bishydroxycoumarin and other compounds of the coumarin type. A few instances of agranulocytosis developing after phenindione was given have been reported (Brown and MacMillan, *Am. J. M. Sc.* 227:526, 1954). There is no evidence that the anticoagulants now in common use injure the liver or kidney, even after long-continued use. Antihistamines do not directly affect the efficiency of the anticoagulants. They could conceivably act in a synergistic manner if the bleeding is the result of an allergic reaction, but clinical or experimental proof is lacking. Aspirin may cause a small elevation of the prothrombin time, and it has been observed that a patient on a maintenance dose of bishydroxycoumarin or a related drug with a fairly constant prothrombin time may have a significant increase when aspirin is taken. No thorough clinical study of the relationship of aspirin to the coumarin derivatives can be found in the literature.

FETAL BLOOD LOSS WITH PLACENTA PREVIA

To the Editor:—*Has any work been done on determining the amount of blood loss to the fetus in a case of placenta previa?*

J. F. Schneider, M.D., Fargo, N. D.

Answer.—Greenhill (Obstetrics, ed. 11, Philadelphia, W. B. Saunders Company, 1955, p. 470) says that, during cesarean section, which is now frequently used in cases of placenta previa, if the placenta must be incised the umbilical cord should be clamped immediately to prevent any loss of the child's blood. This should be done before the child is extracted. Greenhill says:

Wiener called attention to severe anemia of the newborn caused by unapparent hemorrhage from the fetal surface of the placenta. Wickster reemphasizes the role of posthemorrhagic shock in the death of the newborn in the presence of vasa praevia, placenta praevia and abruptio placentae. Abruptio placentae and placenta praevia not only cause fetal and newborn death by asphyxia, interference with nutrition and excretion, toxicity and prematurity but also by anemia due to rupture of the capillaries in the cotyledons. Every infant born of a patient with placenta praevia, abruptio placentae or abnormal placenta should be followed by repeated hemoglobin, cell volume and erythrocyte counts. When posthemorrhage anemia and shock are severe, 10 ml. of blood per pound of the infant's body weight should be immediately drawn from the mother, if Rh positive, and given to the infant through the umbilical, medial malcolar or temporal vein. If the mother is Rh negative, plasma should be given to the baby until Rh negative blood is secured. While this is being done the infant should be supported with oxygen.

Novak does not believe that occult or manifest bleeding in the newborn during delivery is rare. Among 879 cesarean sections there were twenty-eight placentas which were cut or torn during operation; eleven of the babies had posthemorrhagic shock. The fate of babies with posthemorrhagic shock varies; some die at once and others who are in mild shock have an aggravation of the shock if proper therapy by transfusion and oxygen is not given.

SKIN ABSORPTION OF CALORIES

To the Editor:—*Is it possible to absorb through the pores any appreciable amount of calories (from grease) from fumes in a restaurant kitchen? An obese cook gives this as his alibi for failure to reduce on a limited diet.*

P. W. Van Metre, M.D., Rockwell City, Iowa.

Answer.—This consultant is unaware of any reports in the literature indicating that the greasy atmosphere of a restaurant kitchen has any effect on weight. One would guess that the obese cook was sampling a little too freely of his wares between his regular meals, and his "theory" of absorbing extra calories through his skin should be taken with one or two pounds of salt. It just isn't so.

PENICILLIN AND TETANUS

To the Editor:—*Is it true that penicillin affords reasonable prophylaxis against tetanus? It has been said that penicillin can be used as an alternate in patients who are highly allergic to the tetanus antitoxin and in whom use of the latter might cause a severe reaction.*

T. G. Biggs Jr., M.D., Oak Grove, La.

Answer.—Penicillin is not a reliable substitute for specific prophylactic agents (toxoid and antitoxin) in the prevention of tetanus. This statement is made with due recognition of the encouraging experimental results reported by Taylor and Novak (*Ann. Surg.* 133:44, 1951). Penicillin does not neutralize the toxin of tetanus. Too many physicians entertain the erroneous belief that systemically administered penicillin is a reliable prophylactic agent against clinical tetanus in human subjects. The medicolegal implications attendant on the isolated use of local penicillin prophylaxis, to the exclusion of specific agents (toxoid or antitoxin, singly or combined, as indicated) are too broad to recommend the exclusion of the more specific techniques, already tested both experimentally and clinically, in favor of a method in the format of laboratory investigation. To repudiate tetanus antitoxin and toxoid in favor of penicillin would be a serious mistake—at least in the present state of knowledge. This consultant has had the opportunity to see fatal clinical tetanus supervene in a child given multiple large doses of penicillin promptly after a compound fracture of the arm. This took place because the parents misinformed the physicians concerning the history of tetanus toxoid injections; this led to the use of a "booster" injection of tetanus toxoid instead of tetanus antitoxin.

AURICULAR FIBRILLATION

To the Editor:—*Nothing is ever mentioned in the literature about attempting to return to normal sinus rhythm from the irregularity of auricular fibrillation, except a statement in "Clinical Heart Disease" by Levine (ed. 5, Philadelphia, W. B. Saunders Company, 1958, page 326) "that there is a temporary slowing of the ventricles by the vagal stimulation of carotid sinus pressure, with return of the original rapid grossly irregular rhythm." Have there been any instances where paroxysmal atrial fibrillation was affected by carotid sinus stimulation, or is this impossible to accomplish?*

William Schwartz, M.D., Fall River, Mass.

Answer.—It is true that little indeed has been written in the modern literature on carotid sinus pressure as a means of stopping a paroxysmal auricular fibrillation. In the experience of this consultant, and he believes it is the experience of most cardiologists and internists, pressure or massage of the carotid sinus is a completely ineffectual method of treatment for the arrhythmia in question. On the other hand, in supraventricular tachycardia, atrial or nodal, it is a routine procedure and it is often successful.

ALOPECIA AND WARFARIN SODIUM

To the Editor:—*A 77-year-old woman who has been taking digitoxin for the past two years and warfarin sodium for the past three months is rapidly losing her hair. What will remedy this condition?*

Hilmer R. Schmidt, M.D., Rushford, Minn.

Answer.—Digitoxin would have nothing to do with the loss of hair in a woman 77 years of age. On the other hand, warfarin sodium may cause alopecia similar to that seen in alopecia areata. There is usually a regrowth of hair after the drug is withdrawn from therapy.

ASTHMA AND DOG DANDER

To the Editor:—*In augmentation to the question on asthma and dog dander, which appeared in* The Journal *for Aug. 9, 1958, page 1897, the breed of dogs known as Chihuahua are of a different origin from most other species. They are considered, by some, not to be dogs, inasmuch as they are descendant from the Mexican fox. Is it not possible, therefore, that an individual sensitive to dog dander may not necessarily be sensitive to fox dander?*

Forrest H. Howard, M.D.
12852 Palm St.
Garden Grove, Calif.

The above comment was referred to the consultant who answered the original question, and his reply follows.—Ed.

To the Editor:—*Patients sensitive to dog dander have been tested with fox dander on a number of occasions. In all cases they reacted to the closely related fox dander. If the Chihuahua is a fox and not a dog, as the inquirer suggests, it still is likely that the patient would be allergic to it. That the Chihuahua furnishes comparatively little dander would be a more important factor than that it belongs to a different but closely related genus.*

HAZARDS OF USING PARENTAL BLOOD FOR MEASLES MODIFICATION

To the Editor:—*I have two comments concerning the Question and Answer on hazards of using parental blood for measles modification, which appeared in* The Journal *for July 12, 1958, page 1445. First, the inquiring physician asks about the hazard of using parental blood for measles modification "in case of an ill child." Once a person becomes ill with measles it is impossible to modify the disease by any means. On labels of commercial preparations of gamma globulin it is clearly stated that the material must be injected not later than the fifth day after exposure. Second, the answer to the question states that (after injection of whole blood into an* Rh*-negative girl) "an otherwise healthy young woman will never be able to have more than one child." In the classic example of a family afflicted with erythroblastosis, the first pregnancy is uneventful and the baby is normal. Then the second and all future pregnancies terminate in abortions, stillbirths, and infants with erythroblastosis. Presumably, the mother is sensitized during the first pregnancy or delivery. In the situation discussed in this question, the girl may be sensitized prior to her first pregnancy. In other words, a girl so sensitized may be able to have not even one child. Of all* Rh*-negative women producing* Rh*-positive babies, only 1 in 30 has difficulty with erythroblastosis. One theory for this is that the mother is sensitized only when there is mixing of the maternal and fetal blood, a pathological circumstance which occurs in the above proportion of cases. It would seem that the injection or transfusion of whole blood would sensitize a far higher proportion and be correspondingly dangerous. Far more women would be sensitized by an injection or transfusion of whole blood than would be sensitized by pregnancy.*

C. E. Berryhill, M.D.
Readlyn, Iowa.

The above comment was referred to the consultant who answered the original query, and his reply follows.—Ed.

To the Editor:—*These points made in the comment are well taken. The first statement is correct in that, if perchance the original inquiry was meant to refer to modification of measles in a child already ill with this disease, such a practice is not feasible or justifiable. Modification can only be successful if instituted prior to the onset of the disease, and the chances of success decrease rapidly beyond the sixth day after exposure. The second point is also worth stressing;* Rh *antibodies have been found in a high percentage of* Rh*-negative servicemen who had received transfusions. Hence, it is probably correct to state that the risk of sensitization is greater from transfusion than it is from pregnancy and that injection of whole blood during childhood could, in some cases, prevent a woman from having any children.*

CALCIFICATION OF THE ADRENALS

To the Editor:—*On page 1444 of* The Journal *for July 12, 1958, the question of calcification of the adrenals in a 3-year-old girl is raised. The consultant mentions that tuberculosis as a cause of adrenal cortical hypofunction in children is rare, yet he discusses the case from the viewpoint of this disease as based on tuberculosis. It is more likely that the x-ray findings indicating calcification in this child actually visualize bone tissue formation in the adrenal as the not uncommon consequence of adrenal hemorrhage. Adrenal hemorrhage is most often bilateral, although of different magnitude, whereas tuberculosis in a 3-year-old child, if present at all, would be most likely unilateral and too recent to lead to roentgenologically visible calcification. The distinction between metaplastic ossification and calcified tuberculosis is of clinical significance—the former is a stationary process, possibly ending in complete resorption, whereas the latter is likely to become progressive and sooner or later lead to adrenal cortical hypofunction.*

Max A. Goldzieher, M.D.
104 E. 40th St.
New York 16.

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Flemming Schedules National Meetings . .
HEW Resumes Poliomyelitis Vaccine Drive . .
U.S. Physicians Visiting Germany . .
Six Drug Firms Reply to FTC . .
Library of Medicine Publication . .
Miscellany . .

FLEMMING SCHEDULES HEALTH AND WELFARE CONFERENCES

Secretary Flemming of the Department of Health, Education, and Welfare has sent out invitations to some 400 heads of national organizations for a series of Washington meetings on subjects of mutual interest. He told one of his regular press conferences that the sessions were "in the interest of improving communications in the increasingly complex areas of health, education, and welfare."

The Secretary elaborated: "At these conferences the maximum possible opportunity is going to be given to the participants to present ideas to us. We will of course provide any factual information that may be requested relative to the operation of our various programs. But aside from this type of participation we plan to spend our time listening. Ideas presented to us will be taken under advisement and our reaction to these ideas will be made known at a later date."

So many groups are being invited to the conference on "health problems and emerging health needs," sponsored by the Public Health Service, that it has been decided to hold three separate but identical sessions. At this point, meetings are planned from Nov. 3 to Dec. 18. They are:

Nov. 3: Conference on vocational rehabilitation. This conference is being arranged by the department's Office of Vocational Rehabilitation.

Nov. 5: Conference on higher education. This conference is being arranged by the U. S. Office of Education.

Nov. 10: Conference on present status and future needs of mental hospitals in the country. This conference is being arranged by St. Elizabeth's Hospital and the Public Health Service's National Institute of Mental Health.

Nov. 26, Dec. 10, and Dec. 15: Three separate conferences with the same agenda on health problems and emerging health needs. These conferences are being arranged by PHS.

Dec. 1: Conference on primary and secondary education. This conference is being arranged by the U. S. Office of Education.

Dec. 11: Conference on health protection of the American people with particular concern for the manufacturing, storage, and distribution of food. This conference is being arranged by the Department's Food and Drug Administration.

Dec. 12: Conference on social security, public assistance, and child welfare. This conference is being arranged by the Social Security Administration.

Dec. 17: Conference on health protection of the American people with particular concern for the production, storage, and distribution of drugs. This conference is being arranged by the Food and Drug Administration.

Dec. 18: Conference on health and consumer protection. This conference is being arranged by FDA.

POLIOMYELITIS VACCINATION CAMPAIGN TO BE RESUMED BY HEW, AD COUNCIL

Disappointed over results of the poliomyelitis vaccination campaign, the Department of Health, Education, and Welfare is planning a revitalized program for this coming winter. Secretary Flemming has again asked the Advertising Council to help carry out the promotion, with the cooperation of the American Medical Association, the National Foundation, private groups, and state and local health departments.

The announcement was made along with release of a report on the poliomyelitis season just ending by Surgeon General Burney of the Public Health Service. Commented Mr. Flemming: "It is clear from this report that we have not made nearly the progress we could and should have made during the year—a year in which for the first time there was no shortage of vaccine at any time in any area."

Other points made by Mr. Flemming and Dr. Burney:

Fifty-three per cent of the population under 40 has not had the basic three inoculations and over a third has had no vaccine at all. There were 1,815 cases of paralytic poliomyelitis during the first nine months of this year, 258 more than in the same period last year.

A "very disturbing factor" is that in the six states—Michigan, New Jersey, Texas, West Virginia, Virginia, and California—that were most

(Continued on next page)

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Riseman, J. E. F., *et al.*: Circulation *17*:22, 1958

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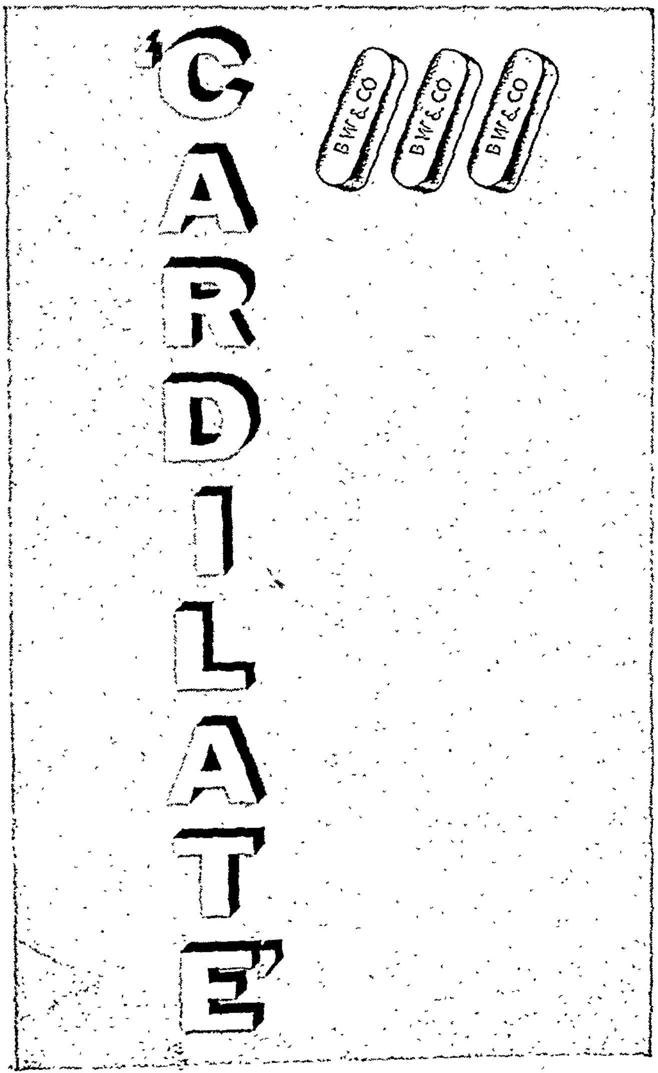


seriously affected the majority of paralytic cases, 416 out of 781, were among children under 5. Of these 416 children, four out of five had received no vaccine.

There is growing evidence that the incidence of polio is increasing in the lower income groups. Mr. Flemming blamed apathy rather than any "insurmountable financial obstacles." He said funds were available from a number of sources and that the A. M. A. has encouraged state and local societies to organize community clinics and provide vaccinations at minimal cost.

Dr. Burney's report stressed that the increase in the number of paralytic cases this year is no reflection upon the efficacy of the vaccine. During the three and a half years it has been in use the effectiveness rate of 60 to 90% has been consistently maintained. Nor is there any evidence that properly vaccinated persons are losing their immunity and becoming more susceptible to poliomyelitis.

The vaccine safety continues high, too, he said. The Communicable Disease Center reports no cases of poliomyelitis which could be traced to any lot of vaccine have occurred in over 200 million doses administered since May, 1955.

Both Mr. Flemming and Dr. Burney expressed opposition to any program of compulsory vaccination for poliomyelitis.

U. S. PHYSICIANS TOURING WEST GERMANY

Six American physicians, most of them active in medical research, have been invited by the German Foreign Office to be the guests of the government for a four-week tour of the federal republic. They leave New York early in November.

The tour is part of an exchange program with the U. S. inaugurated in 1952, with the objective of giving Americans an opportunity to become acquainted with present-day life and institutions in Germany. The German government also wishes to show its appreciation to the U. S. for opportunities given German citizens to visit this country.

The visiting team is made up of Drs. Robert C. Combs of San Francisco, Elmer Hess of Erie, Pa., former President of the American Medical Association and now chairman of the Health Resources Advisory Committee; Marga Hartmann-Sinclair, Anderson Hospital and Tumor Institute, Houston, Texas; Perry B. Hudson, Institute of Cancer Research, Columbia University, New York; Leslie A. Moren, Elko (Nev.) Clinic; and Hans Reese, Department of Neurology, University of Wisconsin.

After a welcome in Bonn, Germany, they will confer with representatives of the appropriate federal ministries and public health agencies, presenting their own problems and learning how similar problems are dealt with in Germany. They then visit various cities, including West Berlin, for talks with other officials and private doctors.

DRUG FIRMS ASK DROPPING OF FTC CHARGES ON ANTIBIOTICS

The six pharmaceutical firms cited in July on Federal Trade Commission charges they attempted to monopolize production and sale of tetracycline drugs have formally asked the agency to dismiss the complaint. They also deny the charge. The companies are Chas. Pfizer & Co., Inc., American

Cyanamid Co., Bristol-Myers Co., Bristol Laboratories Inc., Olin Mathieson Chemical Corp., and the Upjohn Company.

FTC singled out Pfizer as making misleading statements to the U. S. Patent Office in getting a patent in 1955 on tetracycline. FTC said Pfizer then issued licenses to the other respondents for various antibiotics.

Pfizer contended the FTC complaint covers alleged offenses outside FTC jurisdiction. American Cyanamid argued that a patent issued by the Patent Office is presumed to be valid. It added that licensing arrangements between the companies made it possible for them to compete vigorously in the sale of tetracycline.

PAMPHLET LISTS IMPORTANT RUSSIAN MEDICAL JOURNALS

"Guide to Russian Medical Literature," a 90-page booklet, has just been published by the National Library of Medicine, a part of U. S. Public Health Service. It lists 137 important Russian medical journals and reviews 20 others that have been translated into English and are available.

The pamphlet explains where Russian medical publications may be obtained and gives detailed information on available Russian bibliographical sources in special subject areas.

Articles in Russian and Bulgarian giving information about medical libraries, medical publications, and medical bibliography in the Soviet Union are translated in the guide book, which includes notations on Russian bibliographies available in the National Library of Medicine.

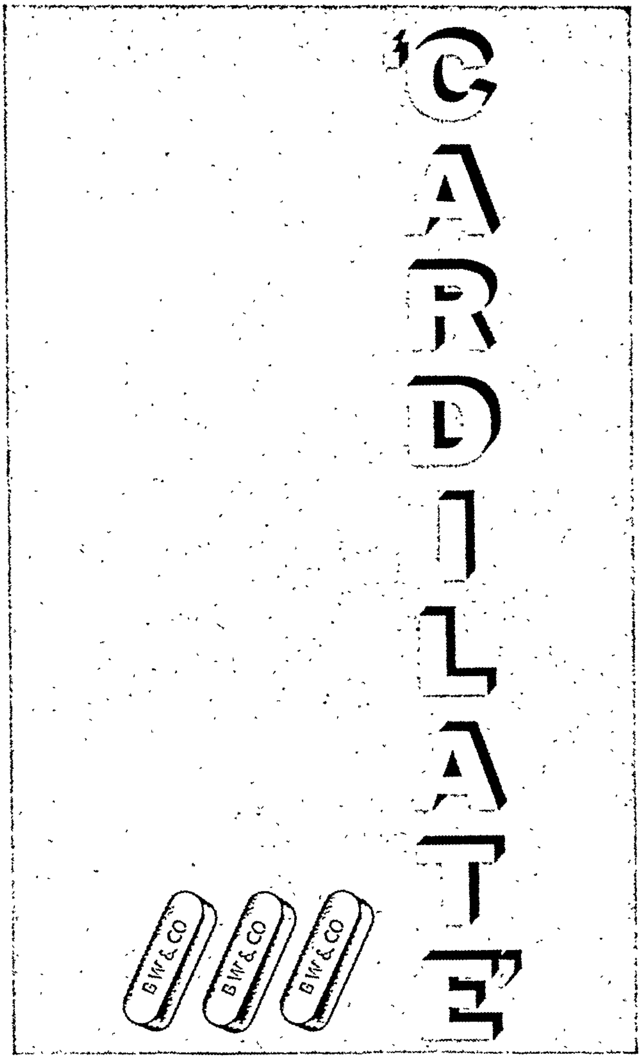
The book was edited by Scott Adams, librarian of the National Institutes of Health, and Dr. Frank B. Rogers, director of the National Library of Medicine. Copies are available from Superintendent of Documents, Government Printing Office, Washington, D. C., at 40 cents each. Ask for PHS pamphlet no. 602.

MISCELLANY

Food and Drug Administration estimates that during the fiscal year ending last July 1 food and drug firms made 141 individual plant improvements, costing over 11 million dollars, to aid in protecting health. FDA also reported that over 4 million pounds of unfit foods and $159,000 worth of unfit drugs were removed from market channels; this covers only actions observed by inspectors, and FDA said many other similar actions probably have been taken.

The Internal Revenue Service has ruled that tax-deductible medical care includes the entire cost of institutional care for a person who is mentally ill and unsafe when left alone. The case involved a mentally retarded child whose doctor felt that it was neither safe nor practical for him to remain with his parents or in an urban community. He was placed in a home with an opportunity of marginal adjustment.

Atomic Energy Commission has accepted 57 scientists, 50 of them from 18 foreign countries, for enrollment in the eighth session of the AEC International School of Nuclear Science at Argonne National Laboratory at Lemont, Ill., North Carolina State College, and Pennsylvania State University.



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MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. F. J. L. Blasingame, 535 North Dearborn St., Chicago 10, Executive Vice President.

1958 Clinical Meeting Minneapolis, Dec. 2-5.
1959 Annual Meeting, Atlantic City, June 8-12.
1959 Clinical Meeting, Dallas, Texas, Dec. 1-4.
1960 Annual Meeting, Miami Beach, Fla., June 13-17.
1960 Clinical Meeting, Washington, D. C., Nov. 29-Dec. 2.
1961 Annual Meeting, New York City, June 19-23.
1961 Clinical Meeting, Denver, Nov. 28-Dec. 1.

AMERICAN

November

American Association of Blood Banks, Netherlands Plaza Hotel, Cincinnati, Nov. 20-22. Dr. John B. Alsever, 1211 W. Washington, Phoenix, *Ariz., Secretary.*

American College of Cardiology, Interim Meeting, Jung Hotel, New Orleans, La., Nov. 20-22. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American Dental Association, Memorial Auditorium, Dallas, Tex., Nov. 10-13. Dr. Harold Hillenbrand, 222 E. Superior St., Chicago 11, General Secretary.

American Society of Clinical Pathologists, Congress Hotel, Chicago, Nov. 2-8. Dr. Clyde G. Culbertson, Indiana Univ. Med. Center, West Michigan St., Indianapolis, Secretary.

American Society of Tropical Medicine and Hygiene, Hotel Deauville, Miami Beach, Fla., Nov. 4-7. Dr. R. B. Hill, 3575 St. Gaudens Rd., Miami 33, Fla.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 17-19. Col. Robert E. Bitner, 1726 Eye St., N. W., Washington 6, D. C., Secretary.

College of American Pathologists, Congress Hotel, Chicago, Nov. 1-5. Dr. A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1, Executive Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Nov. 24-26. Mr. Theodore Wiprud, 1718 M St., N. W., Washington 6, Secretary.

Gerontological Society, Bellevue-Stratford Hotel, Philadelphia, Nov. 6-8. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

International College of Surgeons, Mid-Atlantic Sectional Meeting, The Homestead, Hot Springs, Va., Nov. 16-18. Dr. E. G. Gill, 711 S. Jefferson St., Roanoke, Va., Chairman.

Inter-Society Cytology Council, Hotel Statler, New York, Nov. 13-15. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Cleveland, Nov. 10-13. Dr. Erwin R. Schmidt, Box 1109, Madison 1, Wis., Secretary.

Michigan Academy of General Practice, Sheraton-Cadillac Hotel, Detroit, Nov. 12-13. Dr. F. P. Rhoades, 970 Maccabees Bldg., Detroit 2, Convention Manager.

National Society for Crippled Children & Adults, Statler Hilton Hotel, Dallas, Tex., Nov. 16-20. Miss Catharine Bauer, 11 S. LaSalle St., Chicago 3, Director of Information.

New England Postgraduate Assembly, Statler Hotel, Boston, Nov. 4-6. Mr. Robert S. Boyd, Massachusetts Medical Society, 22 The Fenway, Boston 15, Executive Secretary.

Omaha Midwest Clinical Society, Sheraton-Fontenelle Hotel, Omaha, Nov. 3-6. Dr. Payson Adams, 1031 Medical Arts Bldg., Omaha 2, Secretary.

Puerto Rico Medical Association, Santurce, P. R., Nov. 18-22 .Mr. J. A. Sanchez, Box 9111, Santurce 29, P. R., Executive Secretary.

Radiological Society of North America, Palmer House, Chicago, Nov. 16-21. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Southern Medical Association, New Orleans, Nov. 3-6. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Executive Secretary.

Southern Thoracic Surgical Association, Deauville Hotel, Miami Beach, Fla., Nov. 28-30. Dr. Hawley H. Seiler, 517 Bayshore Blvd., Tampa 6, Fla., Secretary.

United States Section, International College of Surgeons, Mid-Atlantic Regional Meeting, The Homestead, Hot Springs, Va., Nov. 17-8. For information address: Dr. Elbryne G. Gill, 711 Jefferson St., S., Roanoke 13, Va.

Western Surgical Association, Kahler Hotel, Rochester, Minn., Nov. 20-22. Dr. John T. Reynolds, 612 N. Michigan Ave., Chicago 11, Secretary.

December

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 6-11. Dr. R. R. Kierland, Mayo Clinic, Rochester, Minn., Secretary.

American Medical Association Clinical Meeting, Hotel Leamington, Minneapolis, Dec. 2-5. Dr. F. J. L. Blasingame, 535 N. Dearborn St., Chicago 10, Executive Vice President.

American Rheumatism Association, Mayo Clinic, Rochester, Minn., Dec. 6. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 12-13. Dr. Rollo J. Masselink, 700 W. 168th St., New York 32, Secretary.

Mid-West Forum on Allergy, Sheraton-Cadillac Hotel, Detroit, Dec. 8- Dr. John M. Sheldon, University Hospital, Ann Arbor, Mich., Gener Chairman.

Southern Surgical Association, Boca Raton Club & Hotel, Boca Rat Fla., Dec. 9-11. Dr. George G. Finney, 2947 St. Paul St., Baltimore 1 Md., Secretary.

AMERICAN

1959

January

American Academy of Orthopaedic Surgeons, Palmer House, Chicag Jan. 24-29. Dr. Clinton L. Compere, 720 N. Michigan Ave., Chicago 1 Secretary.

American Protestant Hospital Association, Jefferson Hotel, St. Lou Jan. 27-30. Mr. Olin E. Oeschger, 740 Rush St., Chicago 11, Gener Secretary.

American Society for Surgery of the Hand, Palmer House, Chicag Jan. 23-24. Dr. George S. Phalen, 2020 E. 93d St., Cleveland Secretary.

International College of Surgeons, Southeastern Regional Mee ing, Miami Beach, Fla., Jan. 4-7. Dr. Harold O. Hallstrand, 7210 R *Road, South Miami, Fla., Chairman.*

International Medical Assembly of Southwest Texas, Gunth Hotel, San Antonio, Tex., Jan. 26-28. Mr. S. E. Cockrell Jr., 2 W. French Pl., San Antonio, Tex., Executive Secretary.

Rocky Mountain Traumatic Surgical Association, Aspen, Colo., Ja 28-31. Dr. Charles B. Bartell, 1600 Orange Ave., Long Beach 13, Cal Secretary.

Western Society for Clinical Research, Carmel-by-the-Sea, Cali Jan. 29-31. Dr. William N. Valentine, University of California Medic Center, Los Angeles 24, Secretary.

February

American Academy of Allergy, Morrison Hotel, Chicago, Feb. 9-1 Dr. Bram Rose, Royal Victoria Hosp., Montreal, Quebec, Secretary.

American Academy of Forensic Sciences, Drake Hotel, Chicago, Fe 26-28. Dr. Walter J. R. Camp, 1853 W. Polk St., Chicago 12, Secreta

American Academy of Occupational Medicine, Boston, Feb. 11-1 Dr. L. Blaney, 1608 Walnut St., Philadelphia 3, Secretary.

American College of Radiology, Drake Hotel, Chicago, Feb. 6-7. M William C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Direct

California Medical Association, Sheraton-Palace Hotel, San Francisc Feb. 22-25. Mr. John Hunton, 450 Sutter St., San Francisco 8, Executi Secretary.

Colorado State Medical Society, Midwinter Clinical Session, Shirle Savoy Hotel, Feb. 17-20. Mr. Harvey T. Sethman, 1612 Tremont Pla Denver 2, Executive Secretary.

Congress on Industrial Health, Netherland Hilton Hotel, Cincinna Feb. 16-18. Dr. B. Dixon Holland, 535 N. Dearborn St., Chicago 1 Secretary.

March

Alaska Territorial Medical Association, Baranof Hotel, Junea March. Dr. Robert B. Wilkins, 1121 Fourth Ave., Anchorage, Secretar

American Broncho-Esophagological Association, The Homestea Hot Springs, Va., Mar. 8-9. Dr. F. Johnson Putney, 1712 Locust S Philadelphia 3, Secretary.

American College of Allergists, Fairmont Hotel, San Francisco, Ma 15-20. Dr. M. Coleman Harris, 450 Sutter St., San Francisco, Secretar

American Laryngological Association, The Homestead, Hot Spring Va., Mar. 8-9. Dr. James H. Maxwell, University Hospital, Ann Arbo *Mich., Secretary.*

American Laryngological, Rhinological & Otological Society, Th Homestead, Hot Springs, Va., Mar. 10-12. Dr. C. Stewart Nash, 7 Medical Arts Bldg., Rochester 7, N. Y., Secretary.

American Orthopsychiatric Association, Sheraton-Palace Hotel, Sa Francisco, Mar. 30-Apr. 1. Dr. Marion F. Langer, 1790 Broadway, Ne York 19, Executive Secretary.

American Otological Society, The Homestead, Hot Springs, Va., Ma 13-14. Dr. Lawrence R. Boies, University Hospital, Minneapolis 1 Secretary.

Michigan Academy of General Practice, Post-Graduate Clin Sheraton-Cadillac Hotel, Detroit, Mar. 5. Dr. F. P. Rhoades, 970 Ma cabees Bldg., Detroit 2, Convention Manager.

National Health Council, Palmer House, Chicago, Mar. 17-19. M Philip E. Ryan, 1790 Broadway, New York 19, Executive Director.

National Multiple Sclerosis Society, New York, Mar. 9. Mr. Don Vail, 257 4th Ave., New York 10, Secretary.

Southeastern Surgical Congress, Deauville Hotel, Miami Beach, Fl Mar. 9-12. Dr. Benjamin T. Beasley, 45 Edgewood Ave., S. E., Atlanta Ga., Secretary.

Southwestern Surgical Congress, New Brown Palace Hotel, Denve Mar. 30-Apr. 1. Dr. C. M. O'Leary, 1213 Medical Arts Bldg., Oklaho City, Okla., Secretary.

April

Aero Medical Association, Hotel Statler, Los Angeles, Apr. 27-29. D Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

Alabama, Medical Association of the State of, Birmingham, Ap 9-11. Mr. William A. Dozier, 17 Moulton Bldg., Montgomery, Execut Secretary.

American Academy of General Practice, San Francisco, Apr. 6- Mr. Mac F. Cahal, Volker Blvd., at Brookside, Kansas City 12, M Executive Secretary.

(Continued on page 30)

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THE PREMARITAL EXAMINATION

Paul Scholten, M.D., San Francisco

The premarital examination required by law is sometimes cursory, sometimes thorough; in any case it brings the bride and groom to the physician. Although the gynecologist is uniquely fitted for premarital counseling, the general practitioner is at present the one most frequently consulted. The interview cannot follow a set pattern because of the diversity of situations encountered, and in some cases more than one interview is necessary. The premarital examination here outlined consists of laboratory studies, general evaluation of medical history and sexual knowledge, general physical examination, a pelvic examination, and a conseling session. Circumstances do not always permit immediate answers to all questions, but many informative books are now available. From the list here given, the physician should choose some that most nearly represent his own convictions, so that he can recommend them in such cases. To a physician who is sufficiently interested and has adequate time and training, the premarital examination is an opportunity to help substantially to preserve the American family life.

DUE TO THE almost universal adoption of compulsory premarital health examination laws by the various states, the premarital blood test has become an accepted part of preparation for marriage in America today. Starting with Connecticut in 1935, to date 46 of the states have passed such laws. These statutes are primarily measures for the control of infectious venereal disease and, in most instances, require a serologic test only. However, some of the states require an additional physical examination, aimed at detecting primary syphilitic lesions, even though the disease has not yet progressed to a point evidenced by a positive blood test.

These premarital examination laws bring the bride and groom to the doctor. Once there, the premarital examination they receive can be purely cursory and consist simply of the blood test or it can consist of a complete medical examination in the full sense of the term. It is such an examination that is herein outlined, for, while the premarital examination is usually initiated only to fulfill legal requirements, it also offers the physician an opportunity to be of genuine service to the patient and to the community.

An increasing number of marriages are ending in divorce. Statistics show that one of four marriages will not survive for five years. In some localities this figure may rise as high as one out of three. In addition to those couples who actually get to the divorce courts, there must be a reasonable per-

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centage of unhappy marriages that are never resolved in an attorney's office. While not all divorces or unhappy marriages arise from a sexual basis, a surprisingly high percentage do have their origin in some disagreement at that level. Although we can only surmise as to how many cases of incompatibility and mental cruelty fall within our field, we as physicians can help to cut down the number of unsuccessful marriages by giving more attention to counseling before marriage in the hope of eliminating some of the frustrations and points of conflict before they arise.

Not all couples who are happy in the most intimate act of marriage are compatible in other interests, but it is certainly safe to state that those who are unhappy in their sexual relations are usually unhappy with most other aspects of their marriage as well. On a medical level, we can only estimate how much marital strife shows up in a doctor's office as pelvic pain syndromes, menorrhagia, dyspareunia, fear of pregnancy, and other similar psychosomatic disorders. Certainly, many of these complaints could be prevented or minimized by adequate premarital counseling. Such counseling is a specialized field for which the physician, and in particular the gynecologist, is logically fitted by his background and training.

At present a number of organized groups offer short courses and conferences in family relations for the newlyweds or the about-to-be-married; these include various church denominations, the Y. M. C. A., educational institutions, and planned parenthood foundations. In addition, many of our colleges and universities now give family relation or marriage courses to the undergraduate students. All of these agencies, while doing good work, tend to be impersonal, generalized in subject matter, and unavailable to the vast majority of the population at the particular time when they are most needed—the immediate prenuptial period.

On the other hand, the physician should be the logical man to carry out such counseling since he is readily available, should be fully understanding, and is specifically trained for the job. By virtue of his specialty, the gynecologist is uniquely fitted for premarital counseling and increasing numbers of prospective brides are now coming first to gynecologists for examination. At present, however, most premarital examinations are done by the general practitioner, and this may be appropriate inasmuch as he examines both prospective bride and groom and can correlate their individual problems. He is frequently already one or the other's family doctor and has established the good rapport needed for intimate advice. But it is important that a proper gynecologic approach to the problem be used too and that adequate premarital counseling be done at the time of premarital examination. Occasionally the psychiatrist should become a part of the counseling team but usually only when he is called in consultation because of some major, deep-seated emotional problem related to the marriage.

Premarital counseling should be preventive medicine, aimed at warding off causes of future disagreement by means of advice, instruction, and education. As Pearson [1] has pointed out, it differs from marriage counseling, which aims at patching up a marriage already in danger of break-up and which requires specialized legal and psychiatric knowledge. Premarital counseling needs only basic gynecologic training, plus interest and adequate time on the part of the doctor.

When the prospective bride does come to the doctor, how is he to manage the consultation? It has been suggested that the best counseling relationship be an informal one and that no set pattern be followed but rather that the patient be allowed to ask questions and to direct the counseling toward the subjects she desires. Unfortunately, this would be time consuming and, with a nervous or frightened patient, the essential subjects may never be covered. Preferable is the use of a basic outline for an adequate premarital examination so that essentials can be covered in logical sequence.

Easley [2] suggests that the premarital examination should involve three office visits. A brief preliminary visit is made which is confined to generalizations and nonmedical subjects in order to put the patients at ease and to set the stage. At this time the blood test is taken or ordered but no actual examination is done. On the second visit the physical and pelvic examinations are done, but it is not until the third visit that conclusions and advice are given and the prospective husbands seen. If the consulting physician does not treat males, he may refer them for general history, physical examination, and serology and then later counsel with them as indicated.

This plan presupposes that the premarital advice will be sought at an ideal time four to six weeks before the wedding, but, unfortunately, most couples wait until the last moment or at least the last week before initiating the medical examination. Although most gynecologists are pressed for time, certainly with a basic plan in mind they can do a praiseworthy job in a single consultation of about 25 to 30 minutes. To help to accomplish this, I would like to suggest an outline of an adequate premarital examination consisting of (1) laboratory studies, including the required serologic test for syphilis, (2) general medical history and sexual-knowledge evaluation, (3) a thorough physical examination, (4) a pelvic examination, and (5) advice and counsel.

Outline for Examination

Laboratory Studies.—The serologic test for syphilis is mandatory and usually is the only laboratory work demanded; however, additional laboratory tests that are often used to complete a premarital medical survey include Rh factor determination, hemogram, urinalysis, and a chest film.

History.—A brief general medical history should be taken. Most of the premarital patients seen will be in a young, generally healthy age group, but the usual review of past illnesses, accidents, operations, systemic and familial illnesses, and anomalies is important. Menstrual history should be carefully elicited and patterns established. The last menstrual period may be important in regard to the actual date set for the wedding. Menstrual physiology may be reviewed as an aid to judging the woman's knowledge of her bodily functions. This logically leads to an evaluation of her sexual knowledge and experience. This evaluation can be casual and brief, consisting of a few simple questions, or it can be quite formal and detailed.

About 50 to 60% of women seen in premarital consultation will be virgins and a number more will be near-virgins with limited sexual experience. One should ascertain past sexual activities and, even with the virgin, discreetly question about prior attempted sexual contacts and possible traumatic experiences. Of note at this point are the 10 to 25% of brides who will already be pregnant at the time of marriage. Your whole scheme of advice will have to be changed by this. It is wise for preserving your own composure and that of the patient if you refrain from detailed advice about first intercourse and the wedding night until you find out if she is pregnant.

Most women in this day and age will have some knowledge of sex, even if they have had no actual experience. Some will have been previously married, widowed, or divorced, and a history of this should be obtained. Almost all will have read one of the many available books on sex and marriage by the time you are consulted. Many, however, will not have absorbed very much from their reading; some will have absorbed only misconceptions; and some will remain completely ignorant of what the marital act actually involves. Preliminary questioning at this point serves to bring this out and to establish a basis for advice to be given later.

For a more detailed, formal evaluation, several excellent interviewing aids devised by Dr. Gelolo McHugh of the department of psychology of Duke University are available from the Family Life Publications, Inc., of Durham, N. C. These are the "Sex Knowledge Inventories," form X and form Y, questionnaires that the patient fills out before the interview. Form X is an objective measure of sex knowledge through 80 multiple-choice questions covering the whole field involved in marriage counseling. Form Y measures individual understanding of sex vocabulary and anatomy through labeled diagrams and matching-type questions. These forms can be used independently or together. They are a counseling tool which may be helpful in saving time and in giving a basis for discussion by pointing out the areas of knowledge where counseling is most needed. Their successful use depends more on the counselor than on the tests.

Whether by formal questionnaire or informal discourse, some sort of sexual history should be taken if the physician is able to elicit it. He should also question about parental marital life and parental attitudes toward marriage, children, and sex. The child is the mirror of the parents and thus many families perpetuate mistakes and unhealthy attitudes from generation to generation.

Physical Examination.—After the maximum knowledge is gained from the history, a complete general physical examination should be done to rule out general or systemic disease.

Pelvic Examination.—The pelvic examination is essential, with especial attention paid to hymenal presence, dilation or dilatability, discharges, cervicitis, polyps, Trichomonas or Candida (Monilia) infections, pelvic anomalies, developmental defects, possible senile changes, childbirth injuries, or any other variations from the normal.

Kavinoky[3] suggests that, at this point, when examining a girl of no or little experience, the insertion of a plain laboratory size Pyrex test tube, well lubricated, will help the patient to realize that there is a normal opening in the hymen and that it leads to a normal deep vaginal canal. This will demonstrate better than words can the normal vaginal axis and capacity. If a contraceptive device is to be fitted, it should be done at this time.

Occasionally at the time of pelvic examination, we will find a thick, rigid, or imperforate hymen. We can help this condition by office dilation or, rarely, surgical hymenotomy or hymenectomy, but the latter should be reserved for only the most serious cases. Much worse for the bride than a tight hymen is a tender area of healing for three to six weeks after surgery.

If the patient has several weeks remaining until the wedding, it is best to accomplish dilation in the office with the gradual use of a well-lubricated set of graduated dilators. If she has only a minor degree of tight or thick hymen, advice may be given on how to use adequate water soluble lubricants or one of the less sensitizing anesthetic lotions to help her ease the initial discomfort of intercourse. This anesthetic lotion, at the same time, may be valuable in controlling premature ejaculation in the male. Usually, nature is the best dilator and should be given a fair trial. In some cases, Kegel exercises, used over a period of several weeks to months, may be of aid in securing relaxation.

After the physical examination, the patient is told to dress and is then seen in the consultation room for the actual counseling and advice. Any findings or details of technique for intercourse should not be discussed while the patient is still on the table.

Advice and Counseling

By choice, the counseling should be fairly extensive. If for any reason it must be minimal, allow at least a short time for answering specific questions that have arisen, and then, certainly, direct the patient to adequate available literature for sources of more complete answers.

For the busy physician there are a number of source materials available in the form of pamphlets or books which may be dispensed or recommended to the patient. Several of the pharmaceutical companies put out booklets giving a small amount of advice on marital hygiene and sex, but these booklets are mostly inadequate and often are only thinly disguised advertisements. A more adequate and more to be recommended pamphlet is a reprint of a very popular editorial from the journal, *Obstetrics and Gynecology* (4:355-360 [Sept.] 1954) titled, "A Young Woman Seeks Premarriage Counsel" by Dr. C. O. McCormick. This is a well written article in first person style which has gone into many printings and which may be purchased at a nominal price from Paul B. Hoeber, Inc.

There are a number of other pocket-sized manuals on sex and marital guides, each 75 to 100 pages in length, which are available to the physician for 60 to 75 cents a copy if purchased in bulk. These have been written with the intention that the doctor should dispense them at the time of the premarital examination. These manuals contain information on basic anatomy, physiology, sexual technique, and contraception. They serve to round out the physician's advice but each booklet contains some controversial information, and the individual physician would do well to read them carefully before recommending them in order to make sure that the contained information coincides with his own ideas. These pocket-sized books include "Sex Without Fear" by S. A. Lewin and John Gilmore, "A Doctor's Marital Guide" by Bernard Greenblat, and "Sex Manual" by G. Lombard Kelly.

Other more formal volumes which may be recommended for further study include "A Marriage Manual," Hannah and Abraham Stone, "Modern Pattern for Marriage," Walter Stokes, "When You Marry," Evelyn Duvall and Reuben Hill, "Successful Marriage," Morris Fishbein and Ernest W. Burgess, "Facts of Life and Love," Evelyn Duvall, "Sex Factors in Marriage," Helena Wright, "Before You Marry," Sylvanus Duvall, "Marriage Is What You Make It," Paul Popenoe, "Marriage for Moderns," Henry Bowman, "Marriage and Sexual Harmony," Olive Butterfield, "Building a Successful Marriage," J. T. Landis and M. G. Landis, "A Handbook for Husbands and Wives," Theodore Arden, "Family Living," Evelyn Duvall, "Personal Adjustment, Marriage and Family Living," J. T. Landis and M. G. Landis, "Marriage and Family Relationship," Robert Foster, and "Marriage," Robert Harper.

What are the usual questions a young woman wants answered when she comes for premarital advice? These usually include such topics as (1) whether she is generally healthy and physically able to bear children; (2) facts regarding family planning, regulation of fertility and conception; (3) detailed sexual information regarding techniques and hygiene and a chance to ask specific questions about these; and (4) legal requirements.

The physical and pelvic examinations certainly should enable the physician to reassure the patient about her physical well-being and probable fertility. Family planning or regulation of fertility is one of the larger elements in the premarital counseling and often is the reason for selecting a gynecologist. Very few couples, given the choice, desire a pregnancy immediately after marriage. Generally speaking, it is better if there can be a short period before pregnancy ensues, in which time the couple can make the necessary adjustments to sex relationships, finances, and other aspects of marriage. It is often hard for two young people to adjust to each other under ordinary circumstances, but it is much more difficult when one of them is suffering from morning nausea, malaise, and the increased irritability that may come with pregnancy.

However, it is advisable for the doctor to caution against waiting too long to have children, especially the older age groups. Too often couples postpone pregnancy year after year for reasons of finances, education, and housing, only to find they have an infertility problem when they do attempt conception. In general, contraception, by whatever method, should not be prolonged for more than two years at most. Advise, too, that failure of conception, when attempted, calls for prompt medical consultation and corrective study as soon as possible, preferably within 6 to 12 months.

Detailed methods of contraception are too well known to devote space to them here. The physician must always keep in mind the couple's religious and ethical beliefs, and it is not for him to lay down any standard of conduct. He must merely advise and counsel. The amount of counseling the physician may give couples depends to a considerable extent on their own needs and questions. Scheffey[4] has noted that some couples are healthy and emotionally mature individuals, looking forward to the joys and companionship of marriage. Others have physical problems; while still others are normal physically but unstable and underdeveloped emotionally. The amount of counseling also depends on the physician's own maturity and interest and how well he can convey an interesting and intimate body of advice.

Specific Points of Advice

Libido.—It should be pointed out that while both sexes are equally capable of enjoying the sex act, the libido differs from men to women. Men are usually ready for sex with minimal stimulation, while women are usually less interested in sex as such, taking a more natural or matter-of-fact attitude. Hollywood, television, modern magazines, and novels have all led men to glamorize sex. Women can enjoy sex as much as men do, but they are usually not aroused as quickly nor as easily. Many times women wonder what men get so excited about. While a man may become aroused at the sight of a tight sweater, the same is certainly not true of most women. As a general rule, the average woman is less interested in sex and will be satisfied with sex about half as often as her spouse is. This is especially true if she has small children and the labors of a busy household. Of course, this is less likely in the early months of marriage when the young couple is free to devote all of their time to pleasing each other.

Frequency of Intercourse.—Questions concerning frequency of intercourse are commonly asked. We as physicians must once again be careful about laying down any specific rules or limitations. We can advise that there is no set pattern for the first six months or so because that is a time of trial, experiment, and mutual adjustment. We can say that after this approximate length of time, most couples settle down to a pattern of intercourse about twice a week, occasionally three to four times a week, but that this is only an average estimate and the number is an individual matter of mutual demand, agreement, and satisfaction.

Orgasm.—The orgasm or climax is a mysterious subject to most prospective brides. While about half will have had some prior sexual experience, the majority will not have experienced orgasm. Most, however, will have read of the orgasm and found it described as vital to sexual and marital happiness. Most authors have difficulty in explaining what orgasm actually is; and it is indeed hard to describe such a vivid but almost entirely emotional experience. If the girl is a follower of Hollywood, true confession magazines, or Hemingway, she may well expect orgasm to be accompanied by a flash of lightning, a roll of thunder, and a small earthquake. If so, she will most certainly be disappointed and may not even recognize the event when it does happen.

The difference in a man's orgasm and a woman's orgasm can best be explained by saying that in the male there is an actual emission which gives a definite end or climax to the act; in a woman, however, orgasm is merely a lessening of tension after a building up of warmth, emotion, expectancy. This comes as a sudden release with an accompanying feeling of pleasure, warmth, love, togetherness, and relaxation. Orgasm in both can be likened to a sneeze in which there is a building up of tension and of expectancy and then of release. The physiological points of increased pulse, increased blood pressure, more rapid respiration, and then the slowing down of all these may be pointed out. But perhaps in the end we must agree with a local doctor who counsels, "If you have to ask what an orgasm is, you haven't had one; if you do experience orgasm, you won't have to ask." We can also explain that after intercourse and orgasm, the couple is usually relaxed, happy, and ready for sleep.

Further explain that the normal man will experience orgasm each time he has intercourse, but in general a woman will achieve it only about half as often. This latter fact is due to several factors: 1. The woman is generally more slowly aroused and if the husband is hasty, clumsy, inattentive, or inexperienced, he may be finished before the wife is more than mildly interested in what is happening. 2. Orgasm requires both relaxation and concentration on the part of the woman. If she is tired, nervous, or afraid of pregnancy, still upset from a busy day or family life, she may not be able to relax. If privacy is lacking, as it is with couples living with in-laws, or who have children in the same room or nearby, or have neighbors or television or radio in the next room or flat, concentration is practically impossible and a successful climax is usually denied. It may take many months after the honeymoon for a woman to acquire enough relaxation and concentration to achieve orgasm. If this is not explained to the bride-to-be in advance, initial experiences may lead her to frustration rather than to enjoyment.

It is ideal if both parties reach orgasm at the same time, but this is only the ideal and is neither essential nor usual. As stated, the wife usually experiences a climax only about half as often as her spouse does. Occasionally a woman will be more easily aroused, but, on the other end of the scale, perhaps 10% of women will never experience an orgasm throughout their married lives. We can warn the prospective bride of this but should hasten to add that, even without orgasm, a marriage relationship can be a beautiful and successful one. The sex act can still be a pleasure, a sharing of intimacy, a pleasurable warmth, and a joy in making a loved one happy. While there may be no abrupt climax, there can be an enjoyable building up of tension and a gradual release from it. Closeness can give satisfaction even without orgasm and we should give reassurance about this.

Actual techniques of intercourse may be touched on without undue emphasis. Point out that there are only four basic positions. While some of the more sensational guide books point out innumerable attitudes, in reality all are only minor variations of these basic four. None of these are either more normal or more abnormal than others; nor should variations in sex technique be a cause of embarrassment to either of the newlyweds. The first few months of the marriage are ones of experimentation and trial in all fields of mutual living and sex is no exception. It is important to point out here that there is no absolute line of normality or abnormality in regard to the sex act. Anything that gives mutual satisfaction to both parties is normal. That which one party finds unnatural or unpleasant or disgusting or abnormal, is abnormal.

Frigidity.—Frigidity is a special problem but usually is not part of the premarital consultation save as a fear on the part of the bride. This fear usually implies prior unhappy experience. Most frigidity is on a purely emotional level and is very rarely physical. All we can do is to sincerely reassure the patient that there is no physical bar to successful intercourse and to emphasize the fact that within a few months time marital adjustment will usually provide the relaxation and relief of tension needed to solve the problem. Some mild cases of fancied frigidity will be aided by small doses of testosterone over a six-week period. This therapy seems to help emotionally and it will certainly cause some clitoral hypertrophy. True frigidity, however, is primarily a problem calling for psychiatric assistance. Of course if there is a physical bar to successful coitus, such as a rigid hymen or a tender introitus, we can and should offer therapy.

It is most important that the wife be able to discuss sex frankly with her husband if they are to achieve mutual satisfaction and success in marriage. She should never simulate orgasm just to please her husband since honesty is vitally important in this most intimate aspect of marriage.

We can suggest that occasionally the wife should initiate the sex act. This is flattering to the man and strengthens his opinion of his own value and desirability. Conversely, she should refuse only rarely to have intercourse, since in this she is rejecting that which her spouse considers the most valuable and personal thing he has to offer her. She should not be ashamed of sex. Intercourse is not intended solely for pregnancy but for pleasure as well. For a successful marriage, a woman must be many things to her spouse—a good cook, a housekeeper, a mother to her husband, and a good mistress as well.

General Points of Information

We should try to correct certain implied psychological threats by pointing out that it is not true that the hymen must break painfully and bleed to prove virginity; that it is not true that compatibility is proved by simultaneous orgasm; that this is ideal, but unlikely; that the husband is not directly responsible for the wife's orgasm, although the friction does cause the stimulus initiating orgasm; that orgasm is more a mental and an emotional reaction than a physical one on the bride's part.

There are certain personal matters that should be touched on. Most newlyweds will be living in small apartments and of necessity be thrown into very constant intimate contact. In such a close atmosphere, it is important that they keep their bodily functions personal; for example, they should keep the bathroom door closed when so occupied and in turn respect each other's privacy. Sanitary napkins and belts and douche bags are best kept under cover. The bride should be advised against lounging around in an old dressing gown or in her underwear. Occasionally the half-dressed form is an exciting thing to see, but in general nudity removes the mystery and cheapens and coarsens the interpersonal relationships. Daintiness in a woman is still a virtue and an intensely attractive aspect.

Douching might be mentioned at this point. Most girls about to be married will not have had occasion previously to use a douche. Explain that a routine douche is not necessary, but an occasional postcoital or postmenstrual douche may be desirable. For this purpose a simple vinegar and water douche should be sufficient, and it would be wise to explain how to douche in the bathtub or on the toilet.

We should give the patient an opportunity to ask specific questions which our counseling has raised or has left out. We can point out that the physician is usually a better source of premarital advice than are well-meaning friends.

Now arises the problem of the pregnant bride. This is a common one, since approximately 10% of all women are pregnant when wed. Kinsey[5] and others raise this percentage to as high as 20 and 25%. Under these circumstances, reassurance is the most important therapy we have to offer. Telling the girl that her plight is not an uncommon one is a valuable adjunct. It can be more comforting to her if you point out how rare it is that anyone ever makes an untoward remark to the mother of an 8-lb. "premature." Naturally, anyone who can count will be able to figure out what has happened but, in general, friends and relatives will prove to be surprisingly compassionate in this regard. It is sometimes wise to reassure the girl that she has done the right thing to decide to be wed, once she has made her own decision. It is equally important that the doctor not make the decision for the patient. Instead, he can point out the various courses open, and there will be numerous cases where placing the infant for adoption may be far preferable to a shotgun wedding.

The divorcee or the widow who is about to be remarried will usually know the basic facts about sex and obviate the need for a formal lecture or list of details. However, it is just as important that she be given a chance to ask any questions she desires answered, since prior marriage is no proof of adequate ability to adjust to marriage.

Marriage in later life poses several problems. While pregnancy is less likely to occur, if it does, it is also more prone to bring complications. After the menopause there is an actual shrinkage of tissues, loss of elasticity, and loss of lubricating secretions. Advise gentleness of techniques in intercourse in order to avoid tearing of tissue and advise the use of lubricants, of which the water soluble ones are best. For some patients, local or generalized estrogenic substances are advisable and, in some cases, the anesthetic lotions or ointments may be helpful.

One final word may be said about preparing for the actual wedding and the honeymoon. Modern marriage is more conservative than some would have us think; it still retains much of the ritual and mysticism of our primitive ancestors. What with showers, fittings, rehearsals, bachelor parties, the ceremony and the reception, a wedding can become an almost barbaric rite. By the end of the usual ordeal, the bride and groom may both be in a state of near-collapse, both mentally and physically. The treatment must be individualized to the patient, but quite often a course of one of the simpler tranquilizers during the last prenuptial week will serve to help retain the bride's sanity. Meals usually become highly irregular, so a mild laxative nightly can also be helpful during these last few days before the wedding. A conscious effort on the part of the bride to force fluids will do much to help her cut down on honeymoon cystitis. Point out that it is not necessary to consummate marriage on the wedding night; often it is much better to wait until both parties are sober, rested, and relaxed.

Menstrual physiology can be touched on briefly or outlined as indicated by the evaluation made earlier or answers received when making the initial sex-knowledge inventory. Many young women are dismally unaware of their bodily functions and certainly those patients who refer to menstruation as the "curse" could stand a little missionary work. An outline of menstrual physiology forms part of the family-planning counseling and should be the basis for use of the so-called rhythm system or of the safe period.

If you are able to attain good rapport and assume a properly fatherly attitude toward the patient, there are a number of subjects that can be added as a part of the individual's technique of counseling, depending on how well the physician fits the role. Some of these subjects, while not an essential part of the counseling, can form an effective part of it if properly conveyed to the patient. Little things can be mentioned that tend to keep the romance of marriage alive and flourishing, such as remembering anniversaries, the parting morning kiss, avoiding quarrels, avoiding criticism of the spouse, making a 50-50 partnership of the marriage. Financial security and budgeting may be touched on. Religion should be discussed as a fundamental aspect of the family and the marriage and how the church should enter into the life of the new family. The imparting of these subjects is dependent on the counselor's gray hair and ability since they are interesting but not essential.

What is essential is the proper gynecologic approach and adequate counseling at the time of the premarital examination. The physician can help to preserve the American family life by premarital and marital counseling, by advice on child spacing and family planning, by good obstetric and gynecologic care. The ideal physician for this task should have personal warmth and sympathetic understanding, but basically he need have only interest, adequate time, and adequate training.

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SOLAR CARCINOGENESIS.—Collagen degeneration of the skin arises in persons with inadequate cutaneous pigment from excessive exposure to solar radiation. By altering the nutrition of the epidermis, collagen degeneration predisposes to the development of solar keratoses, keratoacanthoma, squamous-cell carcinoma, and basal-cell carcinoma; when present in only moderate degrees it can intensify and accelerate other carcinogenic influences. Our final conclusion is that the carcinogenic effect of ultraviolet light is mediated by its primary action on the dermis. —B. S. Mackie, M.B., B.S., D.D.M., and V. J. McGovern, M.D., The Mechanism of Solar Carcinogenesis, *A. M. A. Archives of Dermatology,* August, 1958.

SUBTOTAL CYSTECTOMY AND TOTAL BLADDER REGENERATION IN TREATMENT OF BLADDER CANCER

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Three types of operation are particularly important in the treatment of cancer of the urinary bladder: transurethral resection, suprapubic segmental resection (which may be subtotal), and cystectomy. Considering the difficulty of complete extirpation of the lesion by transurethral route and the disadvantages of cystectomy to the patient, the authors are convinced that the former is too likely to prove inadequate and the latter unnecessary and too radical. In their experience nearly all of the bladder can be removed by the technique of suprapubic segmental resection without depriving the patient of the possibility of ultimately regaining good vesical function. The operative mortality is not greater in proportion to the amount of bladder wall removed, for the remaining portion has the ability to regenerate all the layers of the normal bladder. Such regeneration occurred in all patients, and bladder capacities up to 410 cc. were attained. The subtotal operation is preferred even in patients with cancer so far advanced that the operation must be regarded simply as palliative, for it removes a mass that is a source of pain and hemorrhage.

In 1953 one of us first reported the favorable results associated with subtotal cystectomy and bladder regeneration in treatment of 16 patients with bladder cancer.[1] This paper presents data collected from five years of additional experience with the procedure in treatment of bladder cancer of all stages and grades. Subtotal cystectomy should be evaluated from two aspects: first, rationale for use of this type of surgery, and, second, clinical data concerning bladder regeneration. These will be handled separately.

Rationale for Use of Subtotal Cystectomy

The three surgical methods used practically to the exclusion of all others in treatment of bladder cancer are transurethral resection, suprapubic segmental resection, and cystectomy. Essentially subtotal cystectomy is a large or radical segmental resection. In order to justify the use of a radical segmental resection, the present cure rate associated with standard segmental resection for superficial infiltrative or deep infiltrative bladder lesions should be equal to or better than that obtained by transurethral resection or total cystectomy.

Transurethral Resection.—Critical appraisal of transurethral resection as a therapeutic modality for superficial or deep infiltrated vesical cancers indicates that it falls short of the usually acceptable surgical techniques employed in treatment of malignancy. First, the operator is restricted in the extent of his resection by the possibility of perforating the bladder wall. For even small or superficial infiltrative bladder cancers the operator must not resect more than about 0.3 cm. beneath the tumor or he will cut a hole in the inflated bladder and have extravasation of the irrigating fluid into the retroperitoneal or intraperitoneal space.

This obligatory restriction of even local excision of a malignant tumor should be condemned. The fact that the cure rate of superficial infiltrating vesical cancers treated by the transurethral method is good should not deter the urologist from improving on these statistics. When a particular cancer in a particular patient is viewed through the resectoscope, the urologist is unable to determine whether that particular tumor will fall into the statistical group that can be treated successfully by transurethral resection. Due to this inability of prediction of depth of infiltration and circumferential spread of the cells within the bladder wall, each patient should be given the benefit of at least having the entire thickness of the bladder wall beneath the neoplasm excised with the tumor en bloc. This cannot be done by transurethral resection.

In previous reports, we have clearly demonstrated that certain bladder cancers of even a superficial nature can spread a considerable distance away from the lesion within the bladder wall and that this spread is not visible through the resectoscope.[3] Moreover, this spread of cancer cells within the bladder wall cannot be palpated at the time of exploration of the bladder via the suprapubic route. It was demonstrated that in certain cases considerably more than a cuff of "normal" bladder around the tumor must be excised to remove all cancer within the wall of the bladder. More recently we have observed that, even with superficial infiltrative lesions, tumor cells can be found in the adventitia or fat immediately adjacent to the bladder. It is

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Read before the Section on Urology at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

impossible to remove these cells by the transurethral resection method. In addition, as it is not possible to predict at the time of suprapubic segmental resection which patient requires a larger or smaller segmental resection, each patient should be given the benefit of the larger resection with full realization that the smaller resection would have cured a large number of the superficial infiltrating carcinomas. This approach is logical and valid provided the operative mortality of the larger segmental resection is no greater than that associated with the smaller segmental resection or the transurethral resection. In our studies and those of others with comparable but smaller series, the operative mortality is no greater.

From a statistical standpoint a review of the more recent significant results associated with treatment of superficial infiltrating carcinomas of the bladder by electro-excision demonstrates a five-year survival rate of about 67%.[3] Persons with tumors of similar stage and grade treated by segmental resection have a similar (66.3%) five-year survival rate.[4]

At this point another misconception should be corrected concerning this method of therapy. It has been stated that the reason transurethral electroexcision fails to cure some patients with superficial infiltrating carcinomas is that the tumors are multifocal in origin. This is usually not true. In actual practice most urologists use segmental resection for two types of patients: those initially seen with large lesions and those where previous transurethral resection has failed to cure and some more "radical" procedure must be used. The fact that the cure rate with segmental resection is so high indicates that the "multifocal cause of failure" attributable to the transurethral electro-excision method is not valid in most patients. One thing can be stated. If transurethral electroexcision is used in treatment of even superficial infiltrating bladder cancers, about 30% of these patients will die of their disease.

There is much evidence to indicate that the statistics associated with segmental resection are actually considerably higher than the mean of 66.3% reported in the more significant papers published to date. As stated above, most urologists do not utilize segmental resection for the smaller lesions. The procedure is reserved for the larger lesions which can be expected to have a poorer survival rate than smaller lesions. Again, most urologists do not utlize segmental resection in the initial treatment of these lesions. Thus, it is seen that many of the patients in the 66.3% survival rate group have previously had transurethral resection which has failed to cure the patient. The carcinoma at time of segmental resection, therefore, is one which has existed within the patient for a longer period of time. Such patients can be predicted to have a lower survival rate than those initially treated by the method. Disregarding these considerations, it can still be stated that segmental resection is equally as effective as transurethral resection for even superficial infiltrating carcinomas of the bladder. Based on all of the considerations mentioned, it is reasonable that if all of these superficial infiltrating carcinomas were treated by a larger segmental resection the present survival rate with the procedure could be increased.

Deep infiltrating carcinomas of the bladder treated by electroexcision have a five-year survival rate in the range of 12%.[3] When this same type of infiltrating carcinoma is treated by segmental resection, the published mean five-year survival rate is approximately 15.1%.[4] This last figure may be slightly higher than that which can be obtained in treatment of unselected cases with standard type of segmental resection. In any case, the statistics published to date indicate that segmental resection is at least as good, if not better, treatment than transurethral electroexcision for deep infiltrating carcinomas of the bladder.

Cystectomy.—Only a few urologists routinely perform total cystectomy for bladder cancer. Most urologists do not support the stand which states that cystectomy is absolutely necessary to effect cure of this disease. Some contend that if cystectomy is curative then a less radical procedure would also have cured the patient. Many firmly believe that the operative mortality associated with cystectomy cancels out the increased five-year survival rate that might be obtained with the procedure. Many urologists contend that the renal complications associated with cystectomy and transplantation of the ureters to the skin or functioning rectosigmoid, defunctionalized rectosigmoid, or ileal loop do not justify use of the procedure. If the cancer cure rate were sufficiently high after cystectomy and ureteral transplantation, the justification for making a significant percentage of these individuals "renal invalids" would be present. Moreover, these patients usually have some type of external collection apparatus for either urine or feces which certainly tends to make these individuals a type of urologic cripple, it not renal cripple.

Anyone practicing urology at an active university hospital where many postcystectomy referral patients are seen can attest that there is in fact much justification for these concepts concerning cystectomy and the results of diversion of the ureters. As a consequence it is not totally unreasonable that most urologists treat these patients with transurethral or segmental bladder resection. Complete pessimism concerning cystectomy is not reasonable, however, for recently the procedure has been generally used as a "last ditch" procedure for advanced bladder cancer. In the majority of the published reports, cystectomy was resorted to only after more conservative types of treatment had failed. As such, these patients must also be classified as failures for the conservative management. This is seldom specified in published reports. Since most urologists perform relatively few of these operations, the incidence of operative mortality and complications of all types, including the renal variant, are greater than those of the few urologists who have much experience with the procedure. Actually, use of the ileal pouch for diversion of the urinary stream has fewer renal complications than formerly experienced with other types of ureteral transplantation. For those who have not performed the procedure, however, it should be remembered that the ileal pouch technique is a major operation in itself. The delayed renal complications usually associated with other methods of diversion of the urinary stream are lessened but not eliminated with the ileal pouch technique.

The present indications for total cystectomy have not been definitively established. Of more importance is that the necessity for cystectomy, as compared to segmental resection to effect cure, has not been proved. There are apparently only two exceptions to this stand, namely, multifocal vesical cancer and infiltrative lesions immediately at the vesical neck. Both require cystectomy. Superficial infiltrating carcinomas of the bladder treated by cystectomy have a mean five-year survival rate of 43.3%.[5] Lesions of this same group treated by segmental resection have a mean five-year survival rate of 66.3%,[4] indicating that segmental resection may well be a better surgical method of treatment than cystectomy for these superficial infiltrating lesions. Deep infiltrating cancers treated by cystectomy have a mean five-year survival rate of 9.9%.[5] This same type of lesion treated by segmental resection has the higher five-year survival rate of 15.1%.[4] Cystectomy is usually selected for the larger lesions. Such tumors can be predicted to have a lower survival rate. These comparative percentage rates, therefore, are probably closer to each other than the statistics indicate.

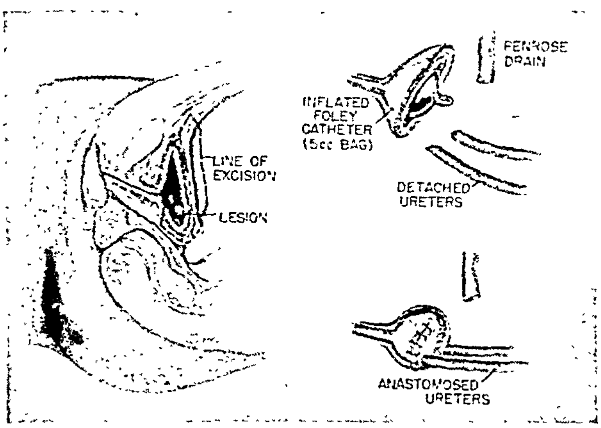

Fig. 1.—Subtotal cystectomy with reanastomosis of ureters; residual bladder sufficiently large to close over inflated 5—cc. Foley bag catheter; regeneration complete in three to eight weeks.

Regardless, for the superficial or deep infiltrating bladder cancers, cystectomy offers the patient little more, perhaps less, than can be obtained with the standard simple segmental resection. In addition, patients having segmental resection are not subject to having their urine or feces drain into a collection apparatus attached to the abdominal wall. Current statistics, therefore, do not justify the opinion that "poor" or "inadequate" cancer surgery has been performed if anything less than cystectomy is used in treatment of superficial or deep infiltrative vesical cancer. The statistics do indicate that segmental resection is equally as curative, if not more so, as total cystectomy. This is applicable for all but the two exceptions previously mentioned of multifocal or bladder neck cancer.

Conclusions.—Apparently cystectomy is unnecessary and too radical a procedure. Transurethral resection is inadequate treatment to achieve maximum potential cure rate for bladder cancer for all stages and grades. This leaves segmental resection as the most desirable of the three methods. Based on these considerations and statistics, we have been exploring the possibilities of subtotal cystectomy for treatment of bladder cancer in an effort to improve the present favorable statistics obtainable with segmental resection.

Bladder Regeneration After Subtotal Cystectomy

We have demonstrated that after subtotal cystectomy in the dog, the entire bladder wall regenerated. We first reported clinical use of this remarkable regenerative ability of the urinary bladder in 1953.[1] In the human as well as the dog, the new bladder is composed of all layers seen in the normal bladder. From a clinical standpoint, regeneration always occurs except if the urine is diverted from the area. The regeneration into the form of a hollow viscus is due to an unknown chemical inductor in the connective tissue matrix immediately beneath the epithelium of the urethra at the vesical neck or the terminal ends of the adjacent ureters or both.

Procedure.—In order to study the procedure of subtotal cystectomy and bladder regeneration, cancers at various sites in the bladder and of varying stage and grade were included in the series on an unselected basis. All patients with papillomas were excluded from the series. Treatment was classified as palliative only when the cancer had spread beyond the bladder to the pelvis or to multiple lymph nodes or chest or bones.

A diagnosis of cancer was established in each patient by a transurethral resection of the entire lesion with the patient under general anesthesia. This general rule of complete transurethral resection of the lesion was adhered to throughout the study with the exception of huge bladder cancers. In this latter situation biopsies of multiple areas were performed with the resectoscope. After resection of the cancer, the entire base of the lesion, including a 1-cm. margin peripheral to the edge of the lesion, was electrocoagulated. Four to seven days later subtotal cystectomy was performed. Based on location, size, and depth of infiltration of the cancer, varying percentages of the bladder were removed. The precise amount of excision had to be determined at time of operation, for endoscopic appearance and bimanual examination were of little assistance. Lesions of low grade and low stage usually resulted in excision of only about 30 to 50% of the bladder. Lesions of moderate grade and moderate stage which were larger in circumference were excised by the subtotal technique in which all but a piece of the bladder was removed. Regardless of amount of vesical excision, whenever possible a small piece of the bladder was salvaged as it accelerated regeneration and resulted in a larger definitive bladder (fig. 1). In all patients the peritoneum attached to the bladder, the perivesical fat, and the bladder segment were removed en bloc.

As the objective of the operation was to excise cancer, no attempt was made to salvage one or both ureteral orifices if doing so would appear to compromise adequate excision of the lesion. Consequently, one or both of the orifices were often sacrificed. The ureter or ureters were reanastomosed to the remaining bladder segment just prior to complete closure of the segment. A standard fish-mouth ureteroneocystostomy was performed.

In most patients it was possible to close the remaining bladder segment, regardless of its shape, over an inflated 5-cc. bag of a Foley catheter. In 12 patients, it was impossible to close the residual bladder segment due to its small size. In these patients the ends of the ureter or ureters were spatulated and anastomosed to the edge of the residual piece of bladder with a single suture (fig. 2). In a few patients with lesions at the vesical neck even this small bladder segment had to be excised, thus resulting in total cystectomy. The ureters of these latter patients were managed in one of two ways: A large isolated segment of rectosigmoid was anastomosed to the urethra, the proximal end of the segment was closed, and the ureters were sutured into this piece of colon. Continuity of intestine was established with standard end-to-end closure. In several male patients, however, true total regeneration of the bladder developed as the ends of the ureters were spatulated, and by a single suture each was attached to the anterior rectal wall as close as possible to the urethra (fig. 3).

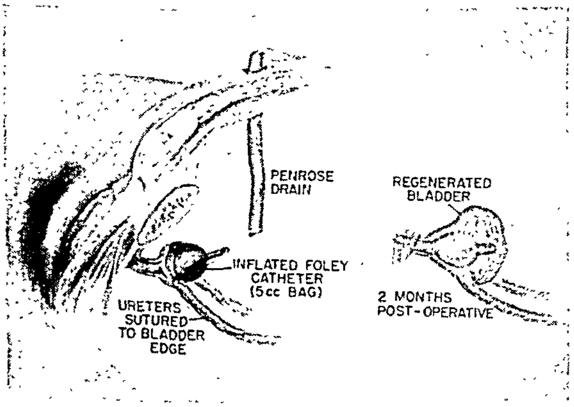
PENROSE DRAIN
REGENERATED BLADDER
INFLATED FOLEY CATHETER (5cc BAG)
URETERS SUTURED TO BLADDER EDGE
2 MONTHS POST-OPERATIVE

Fig. 2.—Subtotal cystectomy; remaining bladder not large enough to close; ends of ureters spatulated and sutured to open bladder segment; regeneration complete in 4 to 12 weeks.

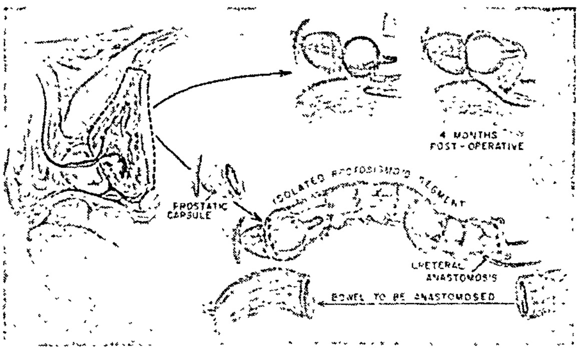

Fig. 3.—Total cystectomy demonstrating alternate methods of ureteral management used. Note peritoneum and perivesical fat excised with bladder.

In all patients an empty Penrose drain was inserted through the abdominal wound to the bladder or the bladder area. As the pelvic peritoneum had been excised with the lesion, the pelvic floor could not be reperitonealized in any of the patients. The Penrose drain was removed approximately four to seven days after suprapubic urinary drainage had stopped and one day after removal of the urethral catheter. If suprapubic drainage persisted for longer than 14 days, the drain was removed. The catheter was left in place for four to seven days after suprapubic drainage ceased.

Results

Essentially this method of management of bladder cancers consists of two surgical procedures: a preliminary complete transurethral resection of the lesion followed by a subtotal cystectomy. It has been of interest to study these subtotal cystectomy specimens. Such specimens of some superficially infiltrating lesions, as determined by the earlier transurethral resection, have later demonstrated that tumor cells were present in the adventitial lymphatics or lymphatics of the bladder wall some distance from the site of the original lesion. It was particularly disquieting to observe cancer cells in adventitial lymphatics when meticulous search of the transurethrally resected cancer site failed to reveal any residual cancer (fig. 4). While only a few such cases were observed in this study they represent definite, conclusive failure of cure by transurethral resection of superficial infiltrating cancer. These patients tend to support our earlier observations relative to the circumferential spread of cancer within the lymphatics of the bladder wall.[2] These findings also prompted institution of our existing program in which peritoneum and perivesical fat as well as the bladder segment with its tumor are removed in a block as this fat or adventitia surrounding the bladder may contain cancer cells.

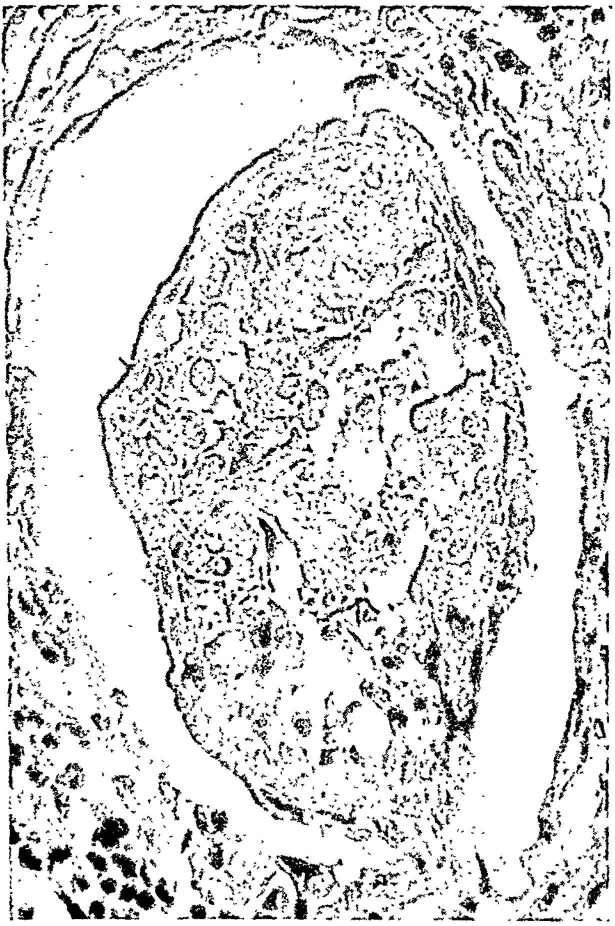
Fig. 4.—Carcinoma in lymphatic of perivesical tissue (× 300).

No intestinal complications resulted from inability to reperitonealize the pelvis. Peritonitis did not complicate the postoperative course. Ileus has been a troublesome factor in several patients but has never been greater than that observed in certain individuals after routine renal surgery. Early in the study two ward patients probably developed unsuspected electrolyte imbalance which became fatal. Electrolyte imbalance is assumed as no demonstrable cause of death was detected at autopsy. No subsequent ward or private patients have died from electrolyte imbalance. No electrolyte imbalance has been seen that required significant treatment. One private patient with a deeply infiltrative epidermoid (squamous cell) carcinoma died of a pulmonary embolus approximately eight weeks after subtotal cystectomy.

Most patients were sent home 10 to 18 days after operation, while still draining urine suprapubically. As might be expected, the less bladder excised the sooner the patients were discharged from the hospital. The urethral catheter usually drained very little for the first week or two postoperatively. Most patients stopped draining urine from the suprapubic wound within three to five weeks after operation. Two patients having total cystectomy without ureteral transplantation drained urine slightly in excess for four months. All patients regenerated a new bladder which closed spontaneously.

One out of five patients (20%) developed some degree of ureterorenal reflux. This has on occasion been accompanied by minimal to moderate degrees of ureteral dilatation and hydronephrosis. The ureterectasis and pyelectasis usually decreased once definitive bladder size was attained (fig. 5). While ureterorenal reflux has been observed as part of this study, in eight years' experience with the procedure a clinical problem was presented in only one instance. That patient had severe, recurrent pyelonephritis which required vigorous antibiotic and chemotherapeutic drug therapy. It should also be reported that ureterorenal reflux can develop in a ureter which has not been disconnected and reanastomosed to the bladder. The significance of this observation is not clear but is under study at present.

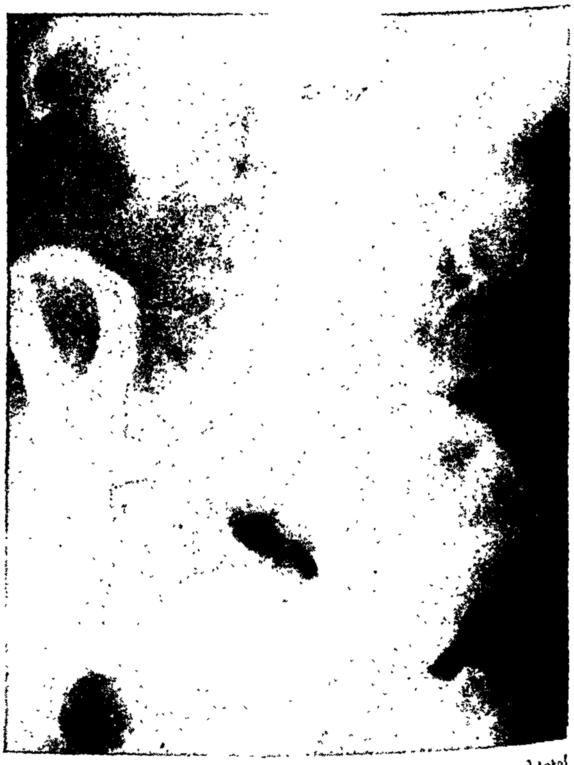
Fig. 5.—Oblique cystogram taken one year after subtotal cystectomy demonstrating ureterorenal reflux; patient asymptomatic, urine sterile.

Nocturia and diurnal urinary frequency were marked from one to two months postoperatively. At the end of four to six months none of the patients in the series had nocturia of more than two to three times each night. During the day, none voided more frequently than once every two to three hours. Cystographic appearance of the bladder demonstrates a viscus which is quite irregular (fig. 6). Cystograms taken at 4 months, 6 months, and 12 months show that there is an increase in bladder size from the fourth to the sixth month. Bladder capacity probably does not increase appreciably after 12 months. The mean bladder capacity for the patients studied ranged between 175 to 410 cc. of urine. The patient with 175 cc. of bladder urine capacity had total cystectomy with complete bladder regeneration. Only one patient in every 10 to 15 will have any residual urine. Residual urine has never been measured at more than 20 cc.

In all patients regeneration of the bladder occurred. In only one patient was the bladder capacity exceedingly small. This was in an individual 79 years of age. In a personal communication Lewis has noted also that patients of the very old age group regenerate with a small bladder capacity after a subtotal cystectomy.

The total number of patients followed for a full five-year postoperative period is too small to permit standard statistical comparison with other methods of management at this time. These results will be reportable later.

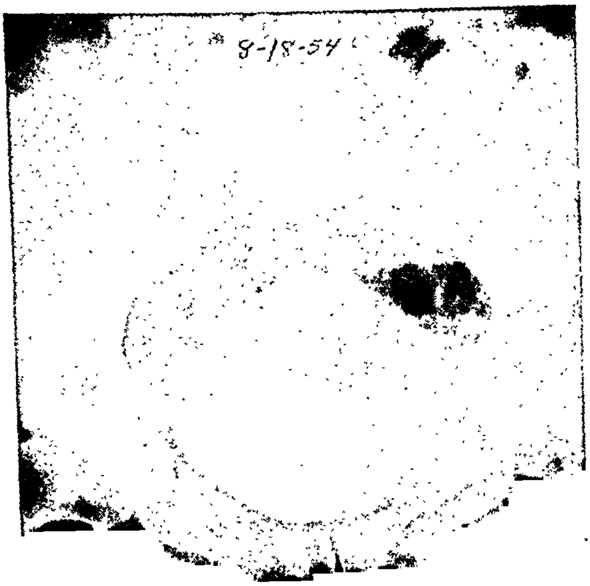

Fig. 6.—Cystogram taken one year after 90% subtotal cystectomy demonstrating irregularity of regenerated bladder; no residual urine.

It has been possible to obtain full thickness biopsy specimens of the regenerated bladder via the suprapubic route. Photomicrographs of the regenerated bladder demonstrate fibrous tissue interlaced with muscle fibers (fig. 7). These muscle fibers are not always continuous through the bladder wall. They originate as separate isolated muscle fibers in the fibrous bladder sheath (fig. 8). The presence of muscle in the regenerated bladder undoubtedly accounts for the notable lack of residual urine in all but a few of the patients studied. The fact that the muscle fibers initiate at individual sites within the fibrous tissue tends to support the view that muscle fibers are not an extension of ureteral or urethral musculature. Apparently the proximity of the urethra and ureters serves as an inductor phenomenon for development of muscle fibers from the totipotent mesenchymal-fibroblastic cell.

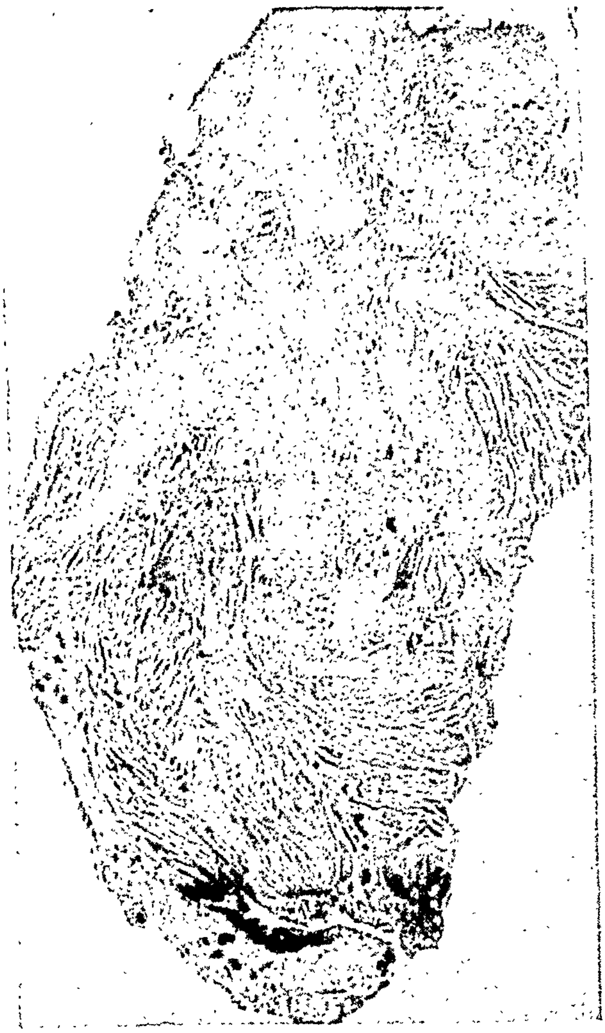

Fig. 7.—Low magnification of full thickness biopsy of regenerated bladder wall; muscle and fibrous tissue present; epithelial surface at top, adventitial surface at bottom.

Patients who had extensive lesions of the bladder were also subject to subtotal cystectomy as a palliative procedure. It was found that eliminating the tumor mass and reanastomosing the ureter to the residual bladder made these patients considerably more comfortable. In addition, the patients had the distinct advantage of being able to void via normal channels rather than using urinary or colostomy collection bags attached to the abdominal wall. In several patients the huge cancer had involved the bony walls of the pelvis and subtotal cystectomy could not be used. It is our opinion that very little could have been accomplished by any other type of surgical procedure with this type of advanced bladder cancer.

It was not hoped that any of the patients with advanced bladder cancer treated by total cystectomy would be cured of their disease. It should be added, however, that several of them are alive four, five, and seven years after subtotal cystectomy and are to date clinically free of cancer.

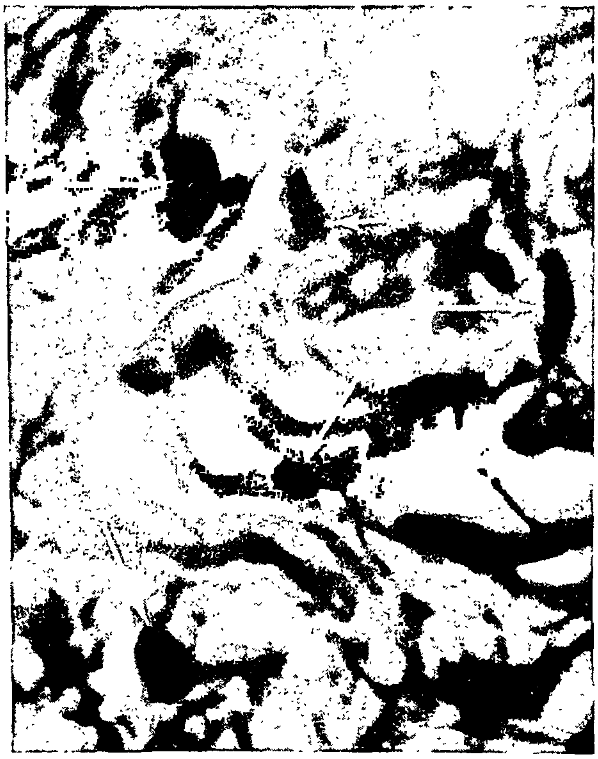

Fig. 8.—Regenerated bladder wall; arrows indicate isolated development or origin of separate muscle fibers. Masson stain (× 1,225).

Comment

The percentage of patients having bladder cancer which is potentially curable by transurethral or suprapubic segmental resection should be increased by use of subtotal cystectomy. Present statistics indicate that simple segmental resection effects a five-year survival rate equal to that of total cystectomy. It is certainly possible that those patients cured by total cystectomy could reasonably be expected to be cured by subtotal cystectomy. Of great importance to the patient is that with subtotal cystectomy the ureters are not transplaned elsewhere than to the bladder. As a consequence, these patients void via the urethra with full urinary control.

Subtotal cystectomy should be considered as a large segmental resection in which ureteral orifices are not spared at the expense of leaving cancer cells within the bladder. Subtotal cystectomy is a simple procedure which can be performed readily at any hospital by any urologist.

Many urologists do not like suprapubic segmental resection, as it is felt that manipulation of the tumor cells can disseminate these cells outside the bladder. This objection has been eliminated as patients in this series had preliminary transurethral resection of the entire lesion prior to subtotal cystectomy.

Patients with deeply infiltrating lesions at the vesical neck are probably not suitable candidates for subtotal cystectomy. These patients as well as those with proved multifocal cancer undoubtedly require total cystectomy. As described above, this does not imply that ureters must be diverted elsewhere.

While subtotal cystectomy is sometimes associated with prolonged suprapubic urinary drainage, this is no objection to the procedure. With cystectomy and transplantation of the ureters to an ileal pouch, there is permanent urinary drainage from an opening on the abdominal wall.

Urologists who perform lymphadenectomy at time of cystectomy will find some difficulty if subtotal cystectomy is used. In essence, the remaining bladder segment is in the way of the operator. Lymphadenectomy can be performed with subtotal cystectomy as completely and efficiently on the side containing the tumor, however, as when total cystectomy is employed.

The 20% incidence of ureterorenal reflux after subtotal cystectomy may appear as a major complication. It has not been so. We are well aware of the disadvantage of ureterorenal reflux, having been among the first to investigate and report on reflux after ureterointestinal anastomosis.[6] To date, the only adverse clinical effect of reflux we have seen is one patient with a severe unilateral pyelonephritis. This is considerably less than seen with any type of ureteral transplantation. Furthermore the incidence of radiographic renal and ureteral abnormalities is greater after any type of ureterointestinal anastomosis than the incidence of reflux in patients after subtotal cystectomy. By preservation of the normal voiding mechanism, subtotal cystectomy has advantages that do not require further discussion and outweigh any of the complications that have been encountered during eight years' experience with the procedure.

The use of subtotal cystectomy in patients with far-advanced bladder cancer appears to be worthwhile as a palliative procedure, as it removes the large irritating and often bleeding mass. As the procedure permits reimplantation of an involved ureter to a normal segment of the bladder, these patients void with normal urinary control. In most patients with far-advanced bladder cancer, when the procedure can be used at all, it is preferred by us to any other we have previously employed.

Summary

Subtotal cystectomy in treatment of bladder cancer of superficial or deep infiltrating types is presented as a substitute for other surgical methods now universally employed. Bladder regeneration after subtotal and total cystectomy indicates that muscle formation originates from the totipotent mesenchymal cell and not as direct extension from ureteral or urethral musculature.

3800 Reservoir Rd. N.W. (7) (Dr. Baker).

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PREVENTIVE AND AVIATION MEDICINE IN PRIVATE PRACTICE

Russell J. Vastine Jr., M.D., Niles, Mich.

It is possible to devote a private practice to preventive and aviation medicine. Its objective is to supply people with a particular type of health service that will enhance well-being and prolong life. Its essential features are thorough examinations and subsequent instruction. Its application is especially natural in connection with aviation, for there is evidence that examinations of pilots have often been perfunctory and that there are ambulatory persons who should not fly. The program of history-taking, physical examination, and laboratory tests here outlined has been found efficient. Such a survey should be an annual affair for both private and airline pilots, regardless of rating. It is easily adapted to all persons interested in maintaining their health.

Most authors have written that the private practice of preventive and aviation medicine is not feasible. With this I disagree. However, I am taking a different approach to the subject than most persons. We must first come to an understanding of definitions and responsibilities of a private practice of this sort.

It is impossible for one to establish a practice to supplant the public health officer. It is impossible to furnish epidemiologic studies for communities and to supply diagnostic laboratory studies, such as a good public health office does. It is, however, possible to supply individuals with a particular type of health service that will greatly enhance their well-being and will, in the long run, statistically increase their longevity. This, then, is the objective of a private practice devoted to preventive and aviation medicine.

Fitness in Flying

Aviation medicine is a special branch of preventive medicine. Just as the pilot practices preventive maintenance for his airplane, so must he practice preventive maintenance for himself. As you know, the pilot is required by law to undergo periodic medical examinations in order to maintain his license. It is in this field of medical endeavor that the medical profession has failed miserably. The caliber of examination to which these persons have been exposed is outrageous. Medical certificates

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Read before the Joint Meeting of the Section on Preventive Medicine and the Aero Medical Association at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

have been issued with only a minimal examination, sometimes with no examination at all. We have insisted on periodic examinations for safety reasons and then have failed to perform them satisfactorily. No wonder, then, the pilot feels distrust for those of us who wish to maintain air safety. No wonder, then, the pilot feels that the medical standards are useless. Physical fitness is important to flying safety, but how can this be proved when we have such poor medical supervision of flying personnel?

To cite an example of the importance of physical fitness to flying safety, I recall a pilot I examined for an airline transport pilot's rating. Using the Civil Aeronautics Administration's chart for testing near vision, I found this man could not read the bottom paragraph with either eye and could only barely make it out with binocular vision. His chief complaint was with night vision. He had trouble reading his maps at night because he had to hold them close to his face to protect the night vision of his co-pilot from the flashlight he used. This man admitted that it had been at least four years since he had been able to read this bottom line. He had been examined at six-month intervals during this period and had never been told his eyes needed correcting lenses, and his medical certificate had never been marked with a limitation. This visual defect was severe enough to cause this man to refrain from filing flight plans unless his radio had been set previously, because he could not read the dials. Here is an excellent pilot endangering himself and all those in the airplane because of a physical defect. His new glasses have increased flying safety for all concerned.

Annual Health Survey

Since we have already stated the objective of a private practice devoted to preventive and aviation medicine and since we have discovered that aviation medicine is preventive medicine, let us set about outlining the responsibilities of this type of practice. Probably the most outstanding service to be offered by this type of practice, and the one in which there is the greatest need for action soon, is the periodic examination. My personal opinion is that an annual examination is adequate unless some defect be found that would dictate more frequent ones. I would prefer to call this examination an annual health survey. I am sure that no one in his own practice would ask a patient to return for such a survey more often than once a year. Pilots are no different. This survey should be an annual affair for all pilots, regardless of rating. The private pilot uses the same air space as the airline pilot and is subject to the same stresses of flying and living. While cost is a factor in the survey I am about to recommend, it is no more costly than seven hours' rental of a Piper Cub or a 50-hour inspection of an airplane.

A complete history of present complaints, along with a searching review of symptoms by systems, should be the first step in the annual health survey. This should be taken by the examining physician for what appear to be obvious reasons, but perhaps some of them should be stated. The examiner will acquaint himself with the type of person he is examining and will gain insight into the complaints the patient has. Most of all, he will be able, if he knows how to fly himself, to get a fair picture of the type of pilot he is examining. This latter point is where we all fall down. Industries using aircraft, as well as the airlines, are interested in finding a simple means of discovering if a pilot will be a potential cause of accident before they hire him. By making a personality analysis and honestly checking it with some one who has flown with the pilot, we will some day be able to put on paper what we look for and provide a long-needed answer. This I have done in my practice. I have been lucky in my decisions. The reason for this is that I am a pilot myself and have a pilot's point of view. If you have never been in a tight squeeze in an airplane or never have been faced with making rapid decisions while in an airplane, it is sometimes difficult to understand what the pilot is telling you. A few hours of flight time is not the answer. The taking of a thorough personal and family history is also important in this phase of the annual health survey.

The physical examination should be done with care and precision, noting any and all defects, no matter how slight. This will some day pay excellent dividends when the examinations are reviewed with an eye toward determining the natural history of some particular disease. We do not know now what may be important later, so we must not omit anything. Included in the physical examination should be a pure-tone audiometry. Many early hearing losses, particularly in those persons who are exposed to noise, will be found only if this is done. No physical examination is complete without a sigmoidoscopy. This can easily be done without preparation on the part of the patient. One of the disposable enemas, given when the history has been completed and before the physical examination is begun, will clean the distal portion of the intestine nicely so that the scope can be passed to 25 cm. with ease. Only rarely does the enema need to be repeated. This method is acceptable to the patient. I have not had to use air insufflation in a single case. More complaints have been registered during the rectal examination than during the sigmoidoscopy.

If at all possible, prostatic secretion should be obtained for examination under the microscope. I have been amazed at the number of cases of symptomless, mild prostatic disease I have found that respond well to sitz baths.

Examination of the eyes should include testing of both distant and near visual acuity and visual fields. Early glaucoma can be helped. While tonometry is ideal, I have not yet become convinced that it ought to be made a part of routine procedure.

In order to complete the annual health survey, certain ancillary studies should be done. These include an electrocardiogram, a two-meter posteroanterior chest x-ray, a complete urinalysis, a complete blood cell count (or a hematocrit determination and differential count), and determination of sedimentation rate and nonfasting blood sugar, blood urea nitrogen, and blood cholesterol levels. Serologic examination is also done and, for the patient's own satisfaction, blood type and Rh-factor determinations. Most of these studies need no discussion as to their usefulness, but perhaps a word should be said about the cholesterol level determination. This was chosen for two reasons, the first of which is more of a research problem. The ever-increasing discussion of cholesterol and its relation to heart disease and arteriosclerosis makes it worthwhile to make routine determinations to perhaps help in the study of the natural history of disease. The second reason for this choice is that it offers a simple means of roughly measuring thyroid function. My patients come to me on a fly-in basis, and it is not feasible to examine these persons in a fasting state so that the basal metabolic rate can be determined. Nor is it convenient to draw additional blood in chemically clean glassware for protein-bound iodine determination. This would also increase the cost of the annual health survey. Thus, the blood cholesterol level is determined. I have stated that these blood specimens are drawn on the nonfasting patient. This, I feel, is a truer picture of the function of the organs involved in these studies than is the fasting state. As a part of the history interview, I review the diet for the past 24 hours. I note the time of the last meal and the time the blood was drawn. Some day I will be able to review these examinations, calculate roughly the amount of food intake, and establish normals for the nonfasting state. It may have many other ramifications that are not now readily noticeable.

The annual health survey I have just reviewed consumes between two and three hours. The cost at present has been set at $70. For what is done, I feel this is a realistic fee. One will never get rich doing this sort of thing, but he won't starve. The x-rays are read by a radiologist, and the laboratory work, except for the blood cell count and urinalysis, is done in a recognized laboratory. The patient is getting a rather extensive review of his health at a reasonable cost. By performing these annually, an excellent case study is established so that even the slightest change may be readily found. This then affords an opportunity for diagnosis of symptomless disease and thereby prevention of serious illness.

Further Responsibilities of Aviation Medicine

This is not complete for the prevention of disease because we are not yet able to follow the natural history of illness, but I sincerely feel that what I am doing will some day offer some of the answers. An objective is also to make flying safer and prolong the productive life of the pilot.

Another responsibility of this type of practice is to the passenger. Regardless of the stand of the airlines, there are certain ambulatory persons who should not fly. The practitioner of aviation medicine must be aware of these ailments and advise the pilot and the passenger of limitations to be observed in flight. Corporate flying increases the exposure of this type of person to the effects of flying without supervision. Very few companies have any rules regarding restriction of flight for their personnel. Advice should also be available concerning prevention and treatment of the diseases incident to flight, such as aerotitis and aerosinusitis. The use of a nasal spray, at the proper time, will reduce pain and lost work.

The physician in this kind of practice should also be available for assistance in establishing retirement and temporary grounding policies that will add to the peace of mind of the pilot. This will give him more mental space for flying. The physician should take an active part in the training of the pilot. He should be called on to teach first aid and to give instruction in the medical aspects of flight. Demonstrations of the effects of oxygen want are more valuable than all the words one can command.

Selection of aircraft and revision of present aircraft always present problems. There are few people who can do it well, but the physician can help in the fields of passenger comfort, cockpit engineering, cabin ventilation, availability of oxygen equipment, and its selection, if its need is anticipated. Also, advice concerning safety features should be forthcoming.

Conclusions

There is great opportunity in this field of aviation medicine for research on an individual basis in matters concerning aviation as well as in matters pertaining to the prevention of disease. The more of us who will participate in this type of program, the more facts will we accumulate to aid all doctors in their effort to control disease.

While this practice is intended to be devoted to the pilot, it is easily adapted to all persons who are interested in the maintenance of their health. Until aviation personnel can be ethically told and can accept what I am trying to do, my income is dependent on nonflying persons.

2026 Lake St.

TWENTY-YEAR STUDY OF PHYSIOLOGICAL MEASUREMENTS IN ONE HUNDRED SENIOR AIRLINE PILOTS

George J. Kidera, M.D., Chicago

Unusually complete sets of physical and laboratory measurements were obtained from 100 men who had been participating actively in the piloting of commercial aircraft for 20 years. This group underwent a rigorous process of selection not only at the beginning but also throughout the duration of their careers as fliers. The average age was 30.5 years at the beginning and 50.5 years at the termination of the study. The most striking changes were a gain of 5.4 kg. (12 lb.) above the initial mean weight of 71.4 kg. (157.5 lb.), a decline of 969 cc. from the initial mean vital capacity of 4,962 cc., and an increase of 5.0 and 4.5 cm., respectively, in the girth of the abdomen and unexpanded chest. Blood pressure and heart rate remained remarkably constant, but impairment of near vision was striking, since 91 men required presbyopic correction by 1957. Audiometric losses were found, amounting to 2.85% for the right ear and 4.6% for the left, but these were roughly equal to those found in the general population. There was no evidence, in this study, of occupational predilection for any particular physical disorder.

For several years physicians of commercial airlines who perform periodic physical examinations on flight personnel have been requested by various groups studying aging to report their findings on pilots in order to document any particular premature physiological deterioration in this group. The airline pilot was recommended for this study for several reasons. First, the airline's type of flight physical examination is complete, consisting of a history and careful examination. Particular reference is made to the special senses and laboratory tests, such as routine chest x-ray, routine electrocardiograms, stress electrocardiograms, sedimentation rate, and complete blood cell counts.

If a deviation from normal is noted in any phase of examination, the airline medical department's approach is slightly different than that in private practice. It behooves the airline to establish a definitive diagnosis and assess and evaluate completely the deviation, regardless of its immediate clinical significance. An example of this would be the detection of minor T-wave changes in a pilot who previously had normal electrocardiographic tracings. In private practice one might recommend further studies, such as thyroid function, stress electrocardiogram, total blood fat determination, and ballistocardiogram. The private patient may not be disposed to undergo such an exhaustive study. When such a deviation is detected in a commercial airline pilot, it is absolutely necessary that the condition be assessed and no avenue of study is left unexplored, in view of the responsibilities incident to the pilot's profession.

Another reason for selecting airline pilots for this study is the fact that these men are periodically examined by the same group of full-time company doctors. Laboratory procedures, even though a 20-year span is covered by this study, have been performed by not more than five different laboratory technicians. This consistency of professional personnel tends to result in more accurate study data than if results from many physicians, clinics, and laboratories are reviewed.

The question whether irregular hours and hypoxia might be factors in deterioration could also be studied by evaluating the physical condition of airline pilots, since many of the senior captains flew in the days prior to pressurization of aircraft and were exposed regularly to altitudes of 10,000 to 14,000 ft. With the advent of pressurized aircraft, this exposure is limited to usually less than 8,000 and more frequently to 5,000 or 6,000 ft.

Materials and Methods

A study of airline pilots does not lend itself to a study on aging per se, since the age group represented cannot be considered aged and there are not enough commercial airline pilots over 50 years of age to give valid statistical criteria. Consequently, this report is concerned with what could be referred to as a middle-aged group. These records are a continuous account of the physical status of these men from the time of their preemployment examination to their current company-prescribed physical examination. These pilots not only receive a thorough annual physical assessment but also must be given medical clearance for resumption of flight duties after any illness or injury.

Flight personnel are also encouraged to consult the physicians not only on personal problems but also on any medical problems relating to their families. This gives the flight surgeons an opportunity to visit and consult with the pilots four to five times per year. One of the most important factors in attaining good liaison with the flight personnel is the position of the medical depart-

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Medical Director, United Air Lines, Inc.

Read before the Joint Meeting of the Section on Preventive Medicine and the Aero Medical Association at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

ment in the company's organization. The United Air Lines medical department does not report to any other administration or agency. All medical records, reports of consultations, and results of examinations are confidential and are made available only to the pilot. Management is advised that an individual is physically qualified or disqualified for further flying, and no data are furnished to anyone unless specifically requested in writing by the pilot. This doctor-patient relationship is of utmost importance in building up free communication between the flight surgeon and the pilot.

At the initiation of this study in 1937, the ages of these 100 airline pilots ranged from 25 to 39 years, with an average age of 30.5. In 1957, the average age was 50.5 years and the range 45 to 59.

Results

A consideration of actual findings of those factors which lend themselves to a quantitative comparison follows.

In 1937, all 100 pilots had distant vision of 20/20 or better in each eye. By 1957, 20 needed glasses to bring their vision to 20/20. The poorest vision in this group was 20/50 for the right eye and 20/67 for the left. Dimond's report [1] of a small series of airline pilots is of interest. In those with a preemployment cycloplegia of +0.25 to -0.25 D., the defect in some remained stabilized but there was a physiological and developmental trend toward myopia. With a preemployment cycloplegic refraction of +0.675 D. or more, most pilots will continue to have hypermetropia (hyperopia) with 20/20 vision throughout their anticipated long span of duty. Consequently, 20/20 vision and a manifest or homatropine-produced hypermetropic reserve of +0.50 D. or more in the early to mid-20's is desirable in the prospective airline pilot.

Near vision for the group was calculated as 1 on the Jaeger system in 1937. By 1957, 91% required presbyopic correction (at an average age of 44.5 years). Other eye findings are shown in table 1.

TABLE 1.—*Average Eye Findings in 100 Commercial Airline Pilots Over Twenty Years*

	1937	1957
Depth perception, mm. (Howard-Dohlman)	11.10	12.99
Abduction, D.*	6.11	5.65
Adduction, D.	13.80	13.05
Esophoria (20 ft.), D.	1.48	0.76
Exophoria (20 ft.), D.	0.42	0.28

* Diopters.

In the general population one sees a tendency toward an increase in adduction in the development of exophoria, especially with accommodative problems. This was not noted in the pilot group, since they were given corrective lenses for accommodative problems early. The average depth perception was essentially unchanged, as would be expected since depth perception is primarily a product of good binocular vision.

In 1937, five had hearing less than 20/20 when using the spoken voice test. This ranged from 15/20 to 18/20. In 1957, the lowest value was 5/20 hearing for the spoken voice in one ear. In 1937, the voice-range audiometric findings were practically normal, but some high-tone loss was noted. The average loss was 12% for the right ear and 13.8% for the left ear. In 1957, 61 showed a loss for the frequencies above 4,000 cps, 16% for the right ear and 17% for the left ear. In 1957, with use of the method for calculating percentage hearing loss recommended by the American Medical Association Committee on Medical Rating of Physical Impairment, a loss in the 500-to-4,000-cps range was found of 2.85% for the right ear and 4.6% for the left ear. These audiometric losses compare favorably with those of ground personnel of similar ages.

TABLE 2.—*Average Blood Findings in 100 Commercial Airline Pilots Over Twenty Years*

	1937	1957
Red blood cell count, cu. mm.	5,462,000	5,315,400
Hemoglobin level, Gm. % (Sahli)	15.35	15.82
White blood cell count, cu. mm.	10,450	9,500
Sedimentation rate, mm./hr. (Cutler)	7.9	6.8

Height averaged 69¾ in. (177 cm.), and there was no significant change over the 20-year period. In reviewing the weight gain it was anticipated that a rather sizable increase in weight over the 20 years would be found. This was not the case. Weight in 1937 averaged 157½ lb. (71.4 kg.), with a variation between 211 and 127 lb. (96.2 and 57.6 kg.), while in 1957 the average was 169½ lb. (76.9 kg.). The heaviest man weighed 221 lb. (111.2 kg.) and the lightest 136 lb. (61.7 kg.). An average weight gain of 12 lb. (5.4 kg.) during a 20-year span was considered excellent. This is further emphasized in the light of a report by Captain Huber of the U. S. Navy (Huber studied a group of Navy pilots and found an average weight gain of 29 lb. [13.2 kg.] per man over a 10-year period). Unexpanded chest measurement in 1937 averaged 35.25 in. and the abdominal measurement 31.43 in. Twenty years later the values were 37.04 and 33.4 in. respectively.

Pulse rate, blood pressure, and vital capacity were periodically determined, and in 1937 and 1957 the average compared as follows: pulse rate, 65.9 and 65.5 per minute; blood pressure, 114/72 and 115/78 mm. Hg (ranges, 96/56 to 154/78 in 1937 and 98/58 to 158/84 in 1957); and vital capacity, 4,962 cc. and 3,993 cc. (ranges, 3,100 to 5,900 in 1937 and 3,000 to 4,850 in 1957). The highest recorded blood pressure was 158/84 mm. Hg; this occurred on a single reading, in 1957, in the same man who, in 1937, had the highest reading, 154/78 mm. Hg. Similarly, the man who, in 1937, had the lowest blood pressure recording, 96/56 mm. Hg, also had the lowest reading in 1957, 98/58 mm. Hg. The vital capacity from 1937 to 1950 was measured by a water spirometer. Subsequent to 1950, the Propper compact spirometer has been used.

The blood findings at every physical examination proved to be extremely consistent. These are summarized in table 2.

In an attempt to evaluate physical status, absenteeism over the 20-year period was studied in this group of pilots. There were 8,267 days lost, which amounts to slightly over 4 days per year per man. The nature of the illness responsible for absenteeism is strikingly similar to that reported by industry in general, and it compared almost to the number for a similar group of ground personnel within the company, with one exception. Upper respiratory infections accounted for approximately 40% of the days lost. The next highest percentage, and this is the exception, was absence due to trauma. This acounted for almost 20% of the pilots' absenteeism. Traumatic injuries resulted in 1,893 days lost. While this is high in relation to illness, it is of interest to note that the traumatic injuries were primarily incurred in recreational activities, such as baseball, skiing, working with power tools, and other "do-it-yourself" programs. The pilot group is usually an athletic group with considerable time for hobbies and diversion, which apparently exposes them to a greater incidence of trauma. The remainder of the causes of absenteeism ranged through all of the illnesses and injuries to which man is heir. Other than traumatic injuries, there was no prevalence of any diseases as compared to nonflying personnel.

Summary

Physical and laboratory findings in 100 senior airline captains over a 20-year period were studied. The homeostasis presented by this group was impressive. In spite of 20 years of their active participation in piloting commercial aircraft, there was no evidence of premature deterioration or predilection to any particular medical or surgical condition.

5959 S. Cicero Ave. (38).

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1. Diamond, S.: Acquired Myopia in Airline Pilots, J. Aviation Med. **28:**559-568 (Dec.) 1957.

ROLE OF THE HUMAN FACTORS BRANCH AT THE AIR FORCE FLIGHT TEST CENTER

Lieut. Col. Burt Rowen (MC), U. S. A. F.

The Air Force Flight Test Center (AFFTC) is located in the Mojave Desert, approximately 75 nautical miles northeast of Los Angeles, and occupies approximately 300,000 acres of land. The physical location of the center is built around the 65 square miles of Rogers Dry Lake, and it is estimated that this concrete-hard lake bed, which serves as a natural emergency landing field, has saved over 630 million dollars in hardware alone since April, 1946. Naturally, no estimate is placed on the lives saved. The AFFTC includes a rocket engine test facility, a high-speed sled track, a precision bombing range, an all-altitude speed course, the U. S. A. F. Experimental Flight Test Pilot School, and the high-speed flight station of the National Advisory Committee for Aeronautics.

Since 1949, U. S. A. F. flight testing has been divided into eight phases by Air Force Regulation 80-14. These divisions are as follows: phase 1, air

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Read before the Joint Meeting of the Section on Preventive Medicine and the Aero Medical Association at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

worthiness; 2, contractor compliance; 3, design refinement; 4, performance stability; 5, all-weather; 6, functional development; 7, employment suitability; and 8, unit operational employment.

In the near future a revised Air Force Regulation 80-14 will change the U. S. A. F. flight testing concept. The new regulation provides for earlier and increased participation by the using commands in the testing of new systems planned for the U. S. A. F. inventory. The purpose of this revision is to assure the earliest possible introduction of proved systems into the inventory and minimize the impact on the combat capability of using commands.

The new test concept calls for integrated test programs with provisions for participation of the using commands and other interested agencies in a combined test force. It will establish the following three general categories of testing: 1. Subsystem development and evaluation. This will correspond to phases 1, 2, and 3. 2. System development and evaluation. This will correspond to phases 4, 5, and 6. 3. System operational evaluation. This will correspond to phases 7 and 8. Pending formal publication of the revised regulation, all commands are directed to cooperate in initiating action for execution of test programs on new systems in conformance with this policy.

Mission of the Human Factors Branch

The mission of the Human Factors Branch at the AFFTC is to study the design and functional characteristics of aircraft weapon systems as related to human capabilities; to evaluate the man-machine relationship; and to recommend appropriate changes. The Human Factors Branch is a part of the Flight Test Engineering Division. This is one of the four divisions of the Directorate of Flight Test, the others being Flight Test Operations Division, Technical Services Division, and Technical Facilities Division. The Technical Services Division includes the Power Plant Branch, Armament Branch, Photography Branch, and the Experimental Track Branch. The Technical Facilities Division includes the Instrumentation Branch, Data Reduction Branch, Telemetering Branch, and the Space Positioning Branch.

Air Force human factors personnel participate with contractor human factors groups and preliminary design engineers during planning and preliminary design of a weapon system or research vehicle. Recommendations for changing features of the system which affect the human operator are submitted at this early stage of development whenever or wherever practicable. Air Force and contractor personnel maintain close liaison with each other during this stage of development. It is of interest to note that prior to an aircraft's first flight and subsequent entry into the formal U. S. A. F. test program many inspections are accomplished. Experts in the field of power plants, airframes, fuels, oxygen, hydraulics, electronics, armament, cockpit layout, escape systems, and others all attend these formal inspections. At these meetings written requests for alterations (RFA) are tied to the various components which are in need of modification. All these items are discussed and categorized, and eventually the first model or prototype is flown. In spite of all this prior effort, a new series of "squawks" or deficiencies become evident as soon as the aircraft begins to fly.

During phase 2, 4, and 6 testing, human factors project officers are a part of the project control team at Edwards Air Force Base. They work in close cooperation with project engineers of the Flight Test Engineering Division and with project pilots of the Flight Test Operations Division. They depend to a large extent on pilot comments for single-place aircraft and pilot comments plus flight participation in multiplace aircraft. The human factors officers examine and study all human factors problems in the weapon system appearing during phase testing. The following areas are examined: armament, auxiliary equipment, controls, communication, crew welfare and comfort, emergency escape, emergency systems, environment, human performance, instruments and indicators, lighting, maintenance problems, mobility, noise, oxygen system, personal equipment and aircraft compatibility, pressurization system, pressure suits and allied equipment, psychological factors, safety, seating configuration, training, and visibility.

Human factors comments become an integral part of the technical reports that are published at the conclusion of phases 2, 4, and 6. The technical report completely describes the operational characteristics of the aircraft, lists discrepancies, and includes recommended modifications for improvement of unsatisfactory systems.

ARDC Manual 80-1, the Handbook of Instructions for Aircraft Designers (HIAD), is used as a guide by the contractors in designing and equipping a new aircraft that enters the test inventory. This periodically revised document was originally issued in July, 1955. The instructions in the HIAD are of a general nature, and the contractors are permitted a certain freedom in complying with these instructions. The HIAD has references to military specifications for detailed descriptions of special installations. Most of the recommendations submitted by the Human Factors Branch concern details of installation, operation, or maintenance, which are improvements of a contractor's installation from a crew member's operational viewpoint.

There are exceptions to this optimal situation in the procurement of aircraft. One outstanding example is the KC-135 procurement without ejection seats even though the HIAD requires them. The KC-135 is the Air Force fuel-carrying version of the

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Human factors comments become an integral part of the technical reports that are published at the conclusion of phases 2, 4, and 6. The technical report completely describes the operational characteristics of the aircraft, lists discrepancies, and includes recommended modifications for improvement of unsatisfactory systems.

ARDC Manual 80-1, the Handbook of Instructions for Aircraft Designers (HIAD), is used as a guide by the contractors in designing and equipping a new aircraft that enters the test inventory. This periodically revised document was originally issued in July, 1955. The instructions in the HIAD are of a general nature, and the contractors are permitted a certain freedom in complying with these instructions. The HIAD has references to military specifications for detailed descriptions of special installations. Most of the recommendations submitted by the Human Factors Branch concern details of installation, operation, or maintenance, which are improvements of a contractor's installation from a crew member's operational viewpoint.

There are exceptions to this optimal situation in the procurement of aircraft. One outstanding example is the KC-135 procurement without ejection seats even though the HIAD requires them. The KC-135 is the Air Force fuel-carrying version of the passenger-carrying Boeing 707. In this particular case, the military tanker is not equipped with ejection seats. The requirement of early delivery took precedence over a jet tanker ejection seat development program.

Where appropriate HIAD instructions followed by a contractor are still found to be unsatisfactory from a flight test crew member's viewpoint, a report of the situation is made. After coordination with local technical or factory representatives, project pilot, and project engineer, recommendations are forwarded to the Commander, Wright Air Development Center, Attention WCXH, Wright-Patterson Air Force Base, Ohio, describing the preferable system or installation so that the Handbook of Instructions for Aircraft Designers may be correspondingly altered.

Effects of Recommendations and Reports

It has been gratifying to see newer aircraft appearing at the AFFTC which incorporate the majority of recommendations submitted in previous technical reports. The F-100 series, the F-105, and F-106 are excellent examples of contractor follow-up aimed at making the aircraft easier for the pilot to operate. During the past four to five years the aircraft industry has realized the increasing requirement for human factors effort within their own production capability. Today almost every contractor in the aircraft industry has a human factors or a human engineering staff. These staffs vary in size, commensurate with the production capability of the individual corporation, and are composed of a variety of professional personnel in the fields of physiology, psychology, medicine, engineering, and the basic sciences. The Edwards Air Force Base Human Factors Branch is of a similar organization. It is gratifying to realize that there is a large human engineering work force-in-being dedicated to tailoring an aircraft to suit the human operator. Everyone concerned with instrumenting, equipping, and modifying cockpit arrangements of piloted aircraft has realized the necessity of relieving the crew member of as many details of aircraft operation as possible, if missions are to be successful. To evaluate our own ability to identify potential problem areas in test aircraft, personnel of the Human Factors Branch visit the using agencies and discuss current operational problems. By means of a questionnaire and informal pilot interviews, a comparison can be made between problems appearing during flight test evaluation and subsequent tactical employment. To date, this has been done on the F-100C, F-101A, F-102A, and C-133A. Results indicate a reliable identification of problem areas during the flight test program. In the maintenance field, a survey of the fire control, engine, electrical, and weapons repairmen was made at Bergstrom Air Force Base, where the F-101A is being flown operationally. All maintenance personnel were asked to rate their particular system numerically regarding accessibility, simplicity, adequacy of tools, reliability of components and adequacy of ground handling equipment. When these numerical ratings were compared with similar maintenance ratings performance at Edwards Air Force Base while the aircraft was under flight test evaluation, a very close correlation was observed. This would indicate a reliable means of identifying maintenance problem areas which using commands would necessarily want covered by additional training. In some instances unanticipated problems occur in tactical employment because of newer equipment supplied for production of aircraft previously unavailable during the earlier flight test evaluation. A typical example of this is a newer oxygen system supplied for production of F-102A aircraft. This particular oxygen system was not available during the flight test program of the F-102A aircraft.

Aeronautical Medical Support Mission

An interesting aeronautical medical support mission presents itself in the field of research aircraft. For approximately 10 years, aeronautical engineers have been recording in-flight data from instrumented aircraft on ground read-out indicators through telemetry. In the past, when a research aircraft arrived at its flight phase of development and was put in flight, the pilot's physiological status was never recorded during flight. This was the situation during the X-2 program. During the flight phase of the X-15 aircraft, physiological data will be telemetered so that a flight surgeon observing the ground read-out can tell when the pilot is approaching the limit of his physiological tolerance. This will quantitatively identify the most stressful portion of a particular mission profile.

The full pressure suits to be worn during the X-15 program were specifically designed with 12 electrical contact points to facilitate the necessary connections between the telemetering sensers and transmitters.

With current techniques of closed-loop dynamic simulation, it is now possible to record additional physiological data during simulated flight trajectories. During the dynamic simulation at the Naval Air Development Center, Aviation Medical Acceleration Laboratory, Johnsville, Pa., electrocardiographic data were recorded but not telemetered.

Before the first flight date of the X-15 in 1959, pilots' physiological data will be telemetered to ground recording stations to evaluate and prove this technique, with use of a TF-102 which has been specifically assigned the Air Force Flight Test Center for this project. Physiological data will be recorded at Edwards Air Force Base, Calif., by means of currently operational National Advisory Committee for Aeronautics High-Speed Flight Station and U. S. A. F. telemetering receivers.

Items such as (1) cockpit pressure, suit pressure differential, (2) helmet pressure, suit pressure differential, (3) pilot's body surface temperature, and (4) electrocardiographic data will be monitored by a flight surgeon at the ground receiving station during flight. The body surface temperature will be correlated with recorded cockpit temperature. This is an extension of the electrocardiographic recording system monitored by a physician during the centrifuge simulation program at the Naval Air Development Center at Johnsville, Pa. This system has a growth potential for additional data recording and is currently being developed by the contractor. For certain missions, specific data can be collected, permitting a flexibility of operation. The objectives of the TF-102 program at the Air Force Flight Test Center are (1) training and familiarization for X-15 pilots; (2) physiological instrumentation research and development and establishment of criteria for future crew selection; (3) standardization of MC-2 suits; (4) product improvement of MC-2 suit assembly for future weapon systems; and (5) operational capability of the MC-2 suit. To date, approximately 10 hours of actual flight time has been accumulated on the MC-2 suit assembly. The transducers for these measurements are all miniaturized and will not hinder pilot performance in any way. The flat electrocardiographic pick-ups, for example, are approximately the size of small dental x-ray films about 1.25 in. square.

Another interesting aspect of physiological monitoring of pilots associated with the X-15 program is the whole-body radiation level. The University of California operates a whole-body radiation counter for the Los Alamos Scientific Laboratory about 70 miles north of Albuquerque, N. Mex., in the Los Alamos airspace prohibited area. This device is shielded by 20 tons of lead and has been used as an investigative tool in measuring whole-body radiation levels of over 3,000 persons. This gamma counter measures radioactive potassium (K^{40}), a constituent of muscle tissue, and identifies radioactivity as so many counts per second. Preflight base-line K^{40} activity will be obtained from pilots in this program and later correlated with postflight levels. The anticipated increased activity represents a quantitative increment of cosmic radiation effects which will be available for the first time from a human subject flying a research aircraft. This program, with use of the only known whole-body radiation counter, is easy to implement. The only portion that needs to be hurried is the trip back to Los Alamos Scientific Laboratory after landing from a high altitude flight. Since the induced whole-body radioactivity of K^{40} has a half-life of 12.8 hours, the pilot's postflight radioactivity therefore returns to normal in about three days. The technique of performing the whole-body count is very simple, requiring only three minutes, and does not involve the use of drugs. The Los Alamos Scientific Laboratory will obtain a newer whole-body radiation counter for transportation to and installation at the Air Force Flight Test Center.

The Air Force Cambridge Research Center, on inquiry, has expressed a position of interest and complete cooperation regarding assistance in obtaining quantitative data of cosmic-ray activity on the surface of the X-15 itself. These results, compared with the pilot's whole-body radiation activity, should be extremely informative regarding the relation between pilot and aircraft exposure to cosmic-ray activity. The initial proposals include (1) an abrasion detector to measure crater erosion, (2) cosmic radiation by emulsion, and (3) micrometeorite detection.

This, briefly, is the Human Factors or Aero Medical support program for the X-15. The over-all objectives are to obtain quantitative physiological data and to make the pilot's actual flight task a realistic continuation of previous experience and training. The procedures for accomplishing these goals are in existence today; they need only further refinement in an operational aircraft to make their use a reality when the X-15 begins its scheduled flight program.

Conclusions

In closing I think it appropriate to quote from the Handbook of Instructions for Aircraft Designers:

> Investigations in aviation medicine have shown the importance of human capabilities and limitations in aircraft design. Investigations in aviation medicine have augmented knowledge and continue to disclose supplementary data on the physiological and psychological limitations of the human system. As aircraft become more complex, and as their performance characteristics make greater demands on the physical and mental capabilities of the crew, the designer must recognize and cater to these definite limits lest the best conceived aircraft make inordinate demands on the flyer from mechanical, aerodynamic, or tactical standpoints. Further, although the aircraft may operate within the range of human capabilities, a lack of proper consideration for the flyer's comfort and safety, and therefore his efficiency, will result in unwarranted reduction in the effectiveness of the aircraft. Attention to crew safety, comfort, and efficiency at early stages in the design of an aircraft often results in satisfactory provisions with little or no performance penalty.

As members of the Air Force flight test team, those of us engaged in human factors efforts feel that we are contributing to safety, comfort, and efficiency of future manned weapon system and manned research aircraft.

MEDICAL CONSIDERATIONS OF EXPOSURE TO MICROWAVES (RADAR)

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Apprehension over the possibility of injury to man by microwaves is based largely on the fact that sufficiently intense and prolonged radiation of this frequency has caused severe injuries to experimental animals. Several hundred workers who have been occupied about radar installations or have been exposed to radar beams have therefore been observed in a comprehensive medical surveillance program. This has been in progress for four years. The initial study was a comparison of 88 nonexposed persons with 226 radar-exposed employees, some of whom had worked with radar as long as 13 years. No acute, transient, or cumulative physiological or pathological changes attributable to microwaves have been revealed by this study in people working with high-power radar transmitters and frequently exposed to their output. These subjects are free to heed the warning sensation of heat and are advised to avoid exposure to any firing beam when in a zone defined by a minimum power density of 0.0131 watts per square centimeter. Since the development of increasingly high-powered transmitters is to be anticipated, the need for more precise and refined statements of human tolerance is evident.

Considerable interest in the biological aspects of exposure to radar beams has been generated during the past year by widespread publicity of an alleged case of human death occurring after a brief exposure to an unknown quantum of microwaves.[1] The incident served to direct attention to this relatively new agent, and questions naturally arose concerning the extent of the hazard, if any, to persons working with radar transmitters and to those who might be exposed in some manner to the energized beam. Many of these questions have subsequently been answered, and much needed research is being conducted by military and civilian agencies to more closely explore the multifaceted disciplines associated with this complex problem. Unfortunately, these less sensational but more scientifically conducted efforts have received little recognition or dissemination beyond the scientific world.

It is not generally known that apprehension over the biological potentials of microwaves dates back to the early days of World War II, when Daily[2] performed his original studies on U. S. Navy personnel engaged in the operation and testing of relatively low-powered radars. Although this study revealed no evidence of radar-induced pathology in human beings, numerous reports have since appeared indicating that tissue injury and animal death can occur under certain experimental conditions. These studies indicate that cataracts, corneal opacities, testicular degeneration, and hemorrhagic phenomena have been induced in anesthetized, small, furry, test animals by exposure to microwaves in the frequency range of 2,800 to 9,000 megacycles for various time exposures. Boysen,[3] using a transmitter with a frequency of 300 megacycles, exposed rabbits in a wave guide and produced damage to the central nervous system, degenerative changes in the kidneys, heart, liver, and gastrointestinal tract, and hemorrhagic changes in the respiratory tree. The power density measured in the wave guide was in excess of 0.1 watts per square centimeter. The animals were exposed for periods of 7 to 10 minutes, and all whose rectal temperatures exceeded 44.5 C (112.1 F) died. Boysen was of the opinion that the pathology and death were causally related to the hyperthermia.

Because of these rather startling findings and the apprehension engendered by their publication in scientific journals, the medical department of the airframe manufacturer, Lockheed Aircraft Corporation, coincidentally installing, testing, and servicing the most powerful airborne transmitters, early in 1954 instituted a comprehensive medical surveillance program for its several hundred employees working with radar or those who might be exposed to the energized beam. This program has now been in progress for four years and constitutes one of the longest continuous medical surveys of radar-exposed personnel in the United States. It is because of this that we believe the results of our efforts and observations should be presented.

It is not our intent to discuss either the physics of microwave propagation or its ignition hazards. This presentation will be limited to a brief discussion of the objectives, methodology, findings, and interpretation of our program.

From the Medical Department, Lockheed Aircraft Corporation.

Read before the Joint Meeting of the Section on Preventive Medicine and the Aero Medical Association at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

Our objectives were threefold: (1) to detect any cumulative biological effects of long-time exposure to microwaves of varying frequency and power output in persons who had taken minimal precautions; (2) to observe possible effects on persons working for short periods of time with or near extremely high-powered airborne radar with pulsed wave emissions; and (3) to establish correlation between objective findings and units of exposure expressed in time-power density factors with the highly idealized objective of establishing safe maximum exposure standards.

Effects of Long Periods of Exposure

Our initial study included 226 radar-exposed employees and 88 nonexposed control subjects. The examination program was designed to detect in our subjects pathology similar to that observed in exposed animals and included procedures and laboratory studies previously performed by other investigators. Several additional procedures were used in an attempt to duplicate findings alleged to have been observed in a study of human subjects.

Examination in every case included an extensive system and organ inventory, with emphasis on the ocular structures, central nervous system, gastrointestinal and urinary tracts, hematopoietic system, and skin. Imbedded metallic foreign bodies were identified; a careful marital and fertility history was elicited; and duration and manner of exposure to radar was identified.

Physical examination was extensive with respect to the body systems as outlined above. In addition, each subject was inspected for manifest hemorrhagic phenomena. A modified test for Rumpel-Leede phenomenon was then performed by means of placing the blood pressure cuff on the arm and maintaining pressure midway between systolic and diastolic pressure for three minutes. The appearance of more than 10 fresh petechiae in a circle 4 cm. in diameter below the cuff was considered a positive result.

The second phase consisted of an ocular examination, including a slit-lamp study performed with the subject subjected to cycloplegia by a competent ophthalmologist; complete blood cell and platelet counts; chest x-rays; and urinalyses.

Among the radar groups were 83 with 2 to 5 years of exposure and 37 with 5 to 13 years. Many of them were exposed while in military service or with other companies prior to their employment at Lockheed. Few had observed any precautions whatsoever prior to 1953. Despite this, no pathology or adverse physiological effects unequivocally attributable to microwave exposure could be demonstrated. Minor variations in the red and white blood cell counts were comparable with those of the controls. An apparent decrease in polymorphonuclear cells and increase in eosinophils and monocytes was later found to be due to a variation of interpretation by a laboratory technician. There were no significant variations in blood platelet counts. Abnormal urinalyses were found to be proportionate in both groups.

Physical abnormalities revealed a higher percentage of circulatory and gastrointestinal diseases in the controls, with a higher incidence of jaundice, severe headaches, and bleeding phenomena. Ocular pathology was considerably greater in the radar group. However, with the single exception of a small, solitary retinal hemorrhage, which absorbed completely within three months, all abnormalities were causally related to diseases or conditions not generally associated with microwave exposure. Chest x-rays were noncontributory. Modified tests for Rumpel-Leede phenomenon were interesting in that 8% of the control group showed positive results, compared to 2% of the radar group. There was no apparent correlation between positive findings and reduced platelet counts. Findings were negative in all but one subject with platelet counts below 200,000 per cubic millimeter. The positive results were, with this single exception, in persons with normal platelet counts.

Fertility studies revealed essentially the same percentage of offspring in both groups, when correcting for the larger number of unmarried men in the radar group. The percentage of childless marriages attributable to unknown causes was comparable, and in not a single instance in the radar group could an admission of male sterility be elicited.

On the basis of these findings we concluded that no person in this study had sustained any acute or chronic injury secondary to radar exposure. Reference is made to an earlier report describing our results in greater detail.[4]

Effects of Short Periods of Exposure

The second objective of our program is currently being accomplished. Having established base-line or reference criteria, we proceeded to reexamine our personnel, first at 6-month, then at 12-month, and finally at 24-month intervals, approximately four years after the original study. This latter program is now in progress. As a result of our original study and findings it was decided to modify our procedures and eliminate several of the more costly, time-consuming, and noncontributory tests. An extensive medical questionnaire was prepared, and each subject was interviewed by a physician. Physical examinations were performed only when indicated on the basis of the medical history or laboratory studies. Ocular and slit-lamp studies were repeated, and complete blood cell counts and urinalyses were performed. Blood platelet studies were repeated on alternate years. A limited number of electrophoretic serum protein patterns were made in an attempt to validate significant changes claimed to have been observed by another investigator.

Routine control studies were discontinued during the second and third examinations but were resumed in a limited degree during the present program. Despite a small sampling of radar-exposed personnel to date (49) it is believed that this group, under surveillance for four years and with exposure to identifiable transmitters, will provide valuable information for comparative purposes. Additional information obtained includes number of days of sick leave, leaves of absence, and other health statistics for the year 1957. Also, a large number of tests for Rumpel-Leede phenomenon were performed on applicants for employment and employees seeking treatment for routine ailments. None of these subjects had had any known exposure to radar emanations.

TABLE 1.—*Subjects in Medical Surveillance Program*

	Exposed Personnel by Study Group, No.					
Age, Yr.	Single Test	1-Yr.	2-Yr.	4-Yr.	Total	Controls, No.
<20	1	0	0	0	1	0
20-29	62	15	30	5	112	12
30-39	46	24	55	24	149	52
40-49	14	8	22	16	60	30
50-58	5	1	3	4	13	6
Total	128	48	110	49	335	100

The results of our studies are graphically presented in the accompanying tables. Table 1 identifies radar-exposed personnel as to numbers, age group, and years under medical surveillance and compares them to the control group. The total exposure group has increased to 335 by the addition of newly hired or reclassified employees. Persons in the one-year study generally have had two examinations, in the two-year study two or three examinations, and in the four-year study three or four examinations. Only the results of the last examinations are included in subsequent tables.

TABLE 2.—*Fertility Data for Subjects in Medical Surveillance Program*

	Exposed Personnel by Study Group							Controls		
	Single Test	1-Yr.	2-Yr.	4-Yr.	Total	Av. No. of Children	% Without Children	Total	Av. No. of Children	% Without Children
Children, no.	112	36	158	76	382	1.94	...	152	2.11	...
Fathers, no.	72	18	77	30	197	...	...	72	...	...
No children										
Cause known,* no.	40	14	25	17	96	...	27	...	...	10
Cause unknown, no.	16	16	8	2	42	...	13	...	...	18
Total	128	48	110	49	335					

* Major known causes: unmarried, wife sterile, birth control.

Table 2 reveals the fertility history of the radar-exposed and control groups. The slightly lower percentage in the first group who have fathered children is reflected in the larger number of unmarried men in this younger age group. Of those who are married and for unknown reasons have no offspring, the control group shows a somewhat higher percentage. The average number of children per family for each group is approximately two.

Table 3 lists comparative pathology or major subjective complaints for the various groups. These conditions were present at the time of the last examination or had been present the previous year. Among the radar-exposed group, sinus, gastrointestinal, genitourinary, and dermatological complaints were most prevalent. Headaches and nervousness were the commonest subjective complaints. The control group exhibited sinus, allergic, gastrointestinal, joint, and genitourinary disease prevalence, with fewer headaches and skin and respiratory complaints. There were no marked deviations or trends from the common disorders and no unusual or unexplained hemorrhagic phenomena. Bleeding was primarily nasal, rectal, or urinary in origin, and generally of known causation.

TABLE 3.—*Comparative Pathology and Number of Subjects with Major Complaints in Medical Surveillance Program*

	Exposed Personnel by Study Group (335)					
Pathology	Single Test	1-Yr.	2-Yr.	4-Yr.	Total	Controls (100)
Nervousness	4	1	2	3	10	4
Headache	5	...	5	3	13	6
Sinusitis	6	...	5	2	13	14
Hay fever	2	...	...	2	4	10
Respiratory disease or asthma	1	...	1	...	2	8
Circulatory and coronary disease	3	...	1	1	5	4
Peptic ulcer	...	1	4	2	7	...
Other gastrointestinal disorder	2	2	7	3	14	8
Urinary tract infection	2	...	5	1	8	8
Skin disorder	4	...	1	2	7	6
Arthritis, bursitis	3	...	2	2	7	10
Bleeding (nose, rectal, urinary)	3	3	2	...	8	4
Other	2*	1†	...	1‡	4	3§

* Mumps, deafness.
† Diabetes.
‡ Ruptured appendix with peritonitis (subject died).
§ Diabetes, hypothyroidism, hernia.

Table 4 reveals ocular findings for the radar-exposed groups only. In our opinion not a single finding can be attributable to radar exposure. There were no cataracts characteristic of those experimentally induced in animals by hyperthermia, and the corneal scars were, in the main, associated with other known causative agents. There were no tendencies toward progressive ocular diseases, and the four-year group revealed no pathology significantly different from that of the other groups. Congenital sutural cataracts are commonly seen in the general populace and are of no significance.

Sick leave for the 49 subjects who were in the four-year group averaged 3.0 days for the year 1957, compared to 3.1 days for the entire factory. In addition, there were five absences of more than 30 days in the radar-exposed group for the following reasons: hemorrhoidectomy, herniorrhaphy, appendectomy, nervous breakdown, and skull fracture. These longer absences represent a rate of 10% for this small group, compared to a plant-wide rate of 8%. One death occurred among the radar-exposed group; it was attributable to complications after a ruptured appendix. The diagnosis was confirmed on autopsy, and the pathological findings were typical of the disease process. Coincidentally, there were over 200 appendectomies, for acute appendicitis, performed on company personnel during the past year. In 1957 there were 113 deaths of company employees, including several cases of leukemia and plasma cell (multiple) myeloma. There was no known exposure to microwaves in any of these cases.

Table 4.—*Number of Ocular Findings in Radar-Exposed Groups*

Pathology	Single Test (128)	1-Yr. (48)	2-Yr. (110)	4-Yr (49)	Total (335)
Pterygium	1	1	2	1	5
Esotropia or exotropia	5	2	3	3	13
Cornea					
Old scars	4	1	4	1	10
Keratitis bullosa	1	...	...	...	1
Lens					
Cataract, sutural (congenital)	6	2	9	2	19
Cataract, traumatic	1	1	1	...	3
Vitreous "floaters"	1	1	1	1	4
Drüsen	4	...	3	...	7
Other*	6	4	3	4	17

* Papilloma, acute trauma, telangiectasis, blepharitis; leukoma (2), episcleritis, pigment change in iris, allergic conjunctivitis; eclipse burn of macula, small retinal hemorrhage, medullated nerve fibers (3), macular scar (cause unknown); diabetic retinopathy, healed chorioretinitis, surgical ophthalmosteresis.

Table 5 reveals blood findings in the radar-exposed groups and in the 100 control subjects. Only the last blood cell counts for the radar group are shown. It is apparent that the blood picture of the radar-exposed and control groups is comparable in most respects. An unusually high incidence of increased monocytes and eosinophils is noted. However, it is somewhat higher in the control group, and the relative increase in these cells can be traced to the interpretation of one laboratory technician.

Blood platelet determinations revealed counts of less than 200,000 per cubic millimeter in only 2 of 243 subjects tested, despite a higher incidence of reduced counts in our original study. Of the 49 subjects studied over four years, only one had a reduced count. This was unusually revealing, in view of the attempts of at least one investigator to use this as an index of exposure. Also, since the same investigator associated exposure with positive findings on tests for Rumpel-Leede phenomenon, we decided to perform these tests on persons who routinely came to the attention of our medical department. Accordingly, 145 tests were performed on employees seeking minor first-aid care, management personnel undergoing annual health examinations, and a small number of applicants for employment. No subject was included in this study if he had knowingly been exposed to microwaves during military service or employment. Of the 20 positive findings obtained, 14 were in men and 6 in women; these represented 14% of the group. Of these subjects, two presented histories of hemorrhagic tendencies, two had been exposed to considerable ionizing radiation (x-ray), three had undergone recent major abdominal or pelvic surgery, and one was taking sedative medication. Of the 88 subjects used in our original control group (in 1954), positive results were noted in 8%.

In 26 cases selected at random, electrophoresis of serum proteins was performed at a hospital laboratory. Many of these specimens were from subjects in the two-year and four-year groups. Results in 16 tests were reported within normal range for all component proteins; 10 revealed deviations as follows: elevation of gamma globulin level, 4; depression of beta globulin level, 3; elevation of beta globulin level, 1; depression of gamma globulin level, 1; and depression of alpha globulin level, 1. In only one subject was the deviation more than slight or considered significant, and this was partially reversed within two months after elimination of an active known infection. Deviations described are generally associated with dietary deficiencies, infections, or obesity. One subject had been exposed to ionizing radiation, two had known active infections, and two had undergone recent surgery.

In no case was there any significant decrease in serum albumin or total protein levels. The albumin-globulin ratio was within normal limits in all persons.

Maximum Exposure Standards

Our third objective was to delineate safe maximum exposure standards. Obviously, this was contingent on the detection of pathological changes in our subjects and determination of the exposure parameters with respect to frequency or wave length, field power density, exposure time, and total test environment.

Table 5.—*Comparative Blood Cellular Findings in Subjects in Medical Surveillance Program*

	Exposed Personnel by Study Group, No.						Controls	
	Single Test	1-Yr.	2-Yr.	4-Yr.	Total	% of 335	Total	% of 100
Red blood cell count, per cu. mm.								
<4,500,000	...	9	1	1	11	3.3	0	0
4,500,000-5,000,000	20	9	11	2	42	12.5	10	10
White blood cell count, per cu. mm.								
Total								
< 5,000	...	...	...	...	0	0	0	0
>10,000	18	7	21	11	57	17.0	16	16
Differential count								
Polymorphonuclear cells								
<55%	24	4	15	16	59	17.0	19	19
>70%	18	3	14	3	38	11.3	12	12
Monocytes (>6%)	13	10	10	18	51	15.4	21	21
Eosinophils (>4%)	16	4	12	16	48	14.3	16	16

It soon became apparent that this objective could not be achieved in our study. We uncovered no pathology caused by either single or repeated exposure, and consequently we cannot speak authoritatively of so-called hazardous exposure conditions. The majority of our personnel had been exposed to radars of the following types: AN/APS-20A, B, C, and E; AN/APS-28, 30, 31, 33, and 45; AN/APG-40, SG, SX, and SR; AN/APS-6 and 7; and AN/APS 70. These transmitters operate in a frequency range of 400 to 9,000 mc and include powerful "S" band components. It was impossible to obtain precise data covering exposure time and average field power density, since these often were unknown. Exposure, however, varied from an occasional incidental contact with the beam to as much as four hours daily close exposure for periods up to four years. Exposures of several minutes a day at distances of less than 10 ft. from the radars were not uncommon.

Protective clothing was not worn by any of our subjects while in the radar beam. For some time precautions have been exercised in testing of our equipment and in exposure of personnel. In general, ground testing of high-powered, aircraft-mounted transmitters involves scanning of a very limited sector, with the antenna pointed toward an open, uninhabited field and rotating at 2 or 6 rpm, usually firing at reduced power.

Personnel were advised to avoid exposure to any firing beam when in a zone defined by a minimum power density of 0.0131 watts per square centimeter. A second zone, extending from the area previously defined to that with a minimum power density of 0.0039 watts per square centimeter, was deemed acceptable for occasional pass-through but no constant exposure, and, finally, there was a third limitless zone in which exposure was not deemed biologically significant.

Unfortunately, because most persons are exposed to radar emanations while on the ground and frequently within the so-called near radar field, it is extremely difficult to evaluate biological effects and hazards in relation to absolute power levels without accurate measurements. The need for such accuracy in quantitative determinations of exposure is obvious and can be achieved by the development of exposure meters reflecting absorption in quantum units of radar energy.

It has been suggested that the sensation of heat is almost universal on exposure to radar and that this in itself is indicative of an overexposure. In our study, only 17% of the 335 subjects experienced heat sensation and frequently only when in close proximity to "X" band radars. Almost 6% were aware of a buzzing or pulsating sensation when in an "S" band field. Less than 1% experienced other sensations or warning phenomena, such as sparking between dental fillings or a peculiar metallic taste. Eight subjects gave a history of metallic implants, such as bullets, buckshot, steel pins, and plates. None experienced any unusual reaction attributable to the metal. There were no complaints of heat directed to rings, wrist watches, or bracelets.

Comment

During the past 18 years thousands of persons, in the course of their employment or while in military service, have been exposed to microwaves, many without protection. Concern over the effects of such exposure is natural and to be expected. The majority of radars in common use today are relatively low powered, with the exception of some military transmitters which exceed one megawatt in peak power output. Radars with many times this power will be operational in due course and may radically change our entire concept of the biological potentials of this form of energy.

Since microwaves of varying frequency and power output are also being used to provide television display, for diathermy, and in electronic ovens, the personal safety problem is one of general public interest.

Experiments to date have been conducted primarily on small fur-bearing animals and under unusual test conditions. It is generally accepted that the modus of injury by microwaves is a hyperthermia produced by absorption of this form of energy by the body. Extreme caution must be exercised in attempting to extrapolate the results of small animal responses to heat to those of the human body. Small fur-bearing animals have a high coefficient of heat absorption, a small body surface, and a relatively poor heat regulating system. The human body, by comparison, has one of the best and can readily adjust and maintain thermal homeostasis under severe stress conditions. Adequate physiological function can be maintained in environments of 240 F for 23 minutes if the humidity is low, and at least one subject has been exposed to a temperature of 400 F, for a period of approximately one minute, without tissue injury.

Conditions of radar operation and testing vary from experimental conditions. Humans are generally exposed while in free air and rarely to a stationary energized beam. Some radar beams are extremely narrow, and only a small portion of the human body is instantaneously exposed. The body can dissipate heat readily to the environment between such exposures. One is reminded of a similar problem associated with exposure of personnel to the thermal effects of ultrasonic energy. In an analogous situation, small fur-bearing animals were destroyed by hyperthermia when placed in a jet engine noise field, yet there is no evidence of any adverse heating effects on man when exposed to the same environment. It has been estimated that it would require many million times the ultrasonic energy of that generated by any current jet engine to produce these effects in human beings.

There is reason to believe that the dramatic effects observed in small animals exposed to whole-body radiation will not be reproduced in larger, live animals under identical test conditions and that the human body will be the most resistant of all. This is not to imply that localized application of heat cannot injure human tissue. We have witnessed one case of accidental 15-second exposure, at a 6-to-10-in. distance, to an "X" band radar of over 100,000 watts in peak power output, with resultant erythema and a sensation of warmth for an hour but with full and uneventful recovery. Unless carefully controlled and operated, microwave diathermy with use of "S" band frequencies can cause local tissue damage.

In our study we have failed to detect any acute, transient, or cumulative physiological or pathological changes in subjects working with and frequently exposed to high-power radar transmitters. It would therefore appear extremely unlikely that there exists a biological hazard to the radar technician observing reasonable precautions or that the general public, exposed to greatly attenuated and intermittent doses of microwaves in the environment, is in any danger of body injury. We can see no causal relationship betwen microwave exposure and any increase in such conditions as coronary heart disease, leukemia, bone and lung cancer, and degenerative diseases of the nervous system.

There is need for additional research to explore the effects on living tissue of extended wave lengths and frequencies of microwaves and transmitters of higher energy, and military research is being directed in this area.[5] Col. G. M. Knauf has reported on the progress of this research at the American Medical Association's Annual Meeting in San Francisco. It is hoped this study will provide the basis for establishment of a realistic safety program acceptable to all scientists.

Finally, a plea is made for deductive rather than inductive research in this difficult field. With the increasing exposure to microwaves in and around the home, as well as in industry, careless and scientifically uncorroborated reports of human injury and death cannot avoid receiving dramatic and widespread dissemination. Such reports should not appear unless sufficient scientific data are included to support the conclusions and unequivocally establish the modus of injury. If radar is incriminated, the report must contain a definite history of exposure, including proper identification of the transmitter, wave length, power density, exposure time, symptomatology, laboratory data, pathological findings, and other factors.

Summary

In 1954, a medical surveillance program was instituted, covering 335 employees working with or exposed to microwaves in an airframe manufacturing company. Examinations have been performed at intervals of 6, 12, and 24 months in an effort to detect acute or cumulative biological effects of exposure at various intervals to energized radar beams in the 400-to-9,000-mc range and with peak power output exceeding one megawatt. Whenever possible, identical examinations were also accomplished on a nonexposed control group.

The examinations have failed to detect any significant changes in the physical inventories of the subjects. The incidence of death and chronic disease, sick leave, and subjective complaints was comparable in both groups. A high percentage of eye pathology was identified, but none with causal relation to the hyperthermia produced by microwave absorption. Fertility studies revealed essentially the same findings for both groups.

Laboratory studies for total red and white blood cell counts and differential counts revealed no significant changes above those noted in the control group. Urinalyses and chest x-rays were noncontributory with respect to radar exposures. Electrophoretic serum protein level determinations were performed on 26 subjects, with insignificant or accountable deviations in 10. Platelet counts and controlled capillary fragility studies for Rumpel-Leede phenomenon revealed the fallacy of using either to identify radar exposure. In addition, only a small percentage of the exposed subjects had been aware of heat or other subjective warning phenomena. Neither these tests nor subjective complaints were considered reliable indexes of exposure.

Absolute or safe maximum exposure standards were impossible to define, inasmuch as no radar-induced pathology could be identified. Subjects had been exposed for various periods, at indefinite distances, to a multitude of radars under flexible test conditions. The need for more precise and refined exposure data is indicated.

On the basis of these studies there appears to be no justification for public concern about the effects of greatly attenuated microwave energy in the environment. It would seem, therefore, that one may continue to enjoy his television without undue apprehension.

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SYNCOPE IN A POPULATION OF HEALTHY YOUNG ADULTS

INCIDENCE, MECHANISMS, AND SIGNIFICANCE

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A better understanding of mechanisms precipitating syncopal episodes and their likelihood of recurrence can lead to prevention of accidents resulting from syncope and perhaps prevent syncopal episodes at crucial times. Eighty-two persons studied described a total of 113 syncopal episodes occurring sometime in the past. The factors, surrounding the acute clinical episode of syncope, were highly variable. More than one factor may have played a role in the precipitation of syncope in a large number of the cases. The overt act at the time of syncope was most often postural change or pain. Cardiac arrhythmias induced by the common respiratory maneuvers were often associated with syncope. Disturbances in a person's general hygiene not only decrease his stress tolerance but apparently make him more susceptible to syncope.

Syncope, or fainting, is a common, everyday occurrence. Both the lay public and the medical profession tend to regard it casually, due to the lack of complications and sequelae. However, in the situational environments of industry and aviation, transitory loss of consciousness may result in serious accidents and death.

In any operation involving a man-machine effort, the success of the operation depends on the man just as much as on the machine. Modern aviation is a good example wherein split-second failure on the part of the man can have disastrous results. In recognition of the importance of syncope as a cause of human failure in aviation, an effort is made to detect those persons who are syncope-prone as a preventive measure and all cases of syncope are carefully studied to ascertain the cause when possible. Among flying personnel, 82 persons who have experienced 113 syncopal episodes have recently been studied at the School of Aviation Medicine.

Method and Techniques

Studies on the 82 apparently healthy persons included the taking of a detailed history, a complete physical examination, blood cell count, determination of hematocrit value, erythrocyte sedimentation rate, and fasting blood sugar level, urinalysis, chest x-ray, skull x-ray, and electrocardiogram. Other tests have been utilized when indicated. In addition to this routine examination, 55 persons were given a battery of special procedures designed to stress the cardiovascular system. In this manner it was hoped to determine the factors which might have contributed to their syncopal episodes and also to study the disturbances in the cardiovascular mechanisms associated with syncope. The patient's blood pressure, pulse rate, symptoms, and signs were observed at rest and on a tilt table during (1) breath-holding at maximum inspiration; (2) hyperventilation followed by breath-holding; and (3) carotid sinus massage of 15 seconds' duration. A 15-minute orthostatic tolerance test on the tilt table and a one-minute cold pressor test (hand immersed in water of a temperature between 0 and 1 C) were performed. The response to intravenously given atropine, 0.75-1.2 mg., was also studied in five cases.

Results

The 82 persons studied in this series were U. S. A. F. flying personnel. They described a total of 113 syncopal episodes occurring sometime in the past. The factors surrounding the acute clinical episode of syncope were highly variable. The age at the time of syncope, a brief note about the clinical circumstances, and the findings during the clinical investigation are briefly summarized in the table. From the brief clinical notes it can be seen that more than one factor may have played a role in the precipitation of syncope in a large number of the cases. The overt act at the time of syncope was most often postural changes or pain. Eleven subjects had recently ingested at least one alcoholic drink prior to the syncopal episode, six had been on weight-reducing diets, and others had recently completed some exhaustive physical labor and/or lacked adequate rest. It is our impression that disturbances in a person's general hygiene not only decrease his stress tolerance but apparently make him more susceptible to syncope.

Only one of the cases could definitely be attributed to a clinical episode of cardiac arrhythmia. This is not surprising, since this was the only episode of clinical syncope monitored by an electrocardiogram.

From the School of Aviation Medicine, Randolph Air Force Base, Texas.

Read before the Joint Meeting of the Section on Preventive Medi- and the Aero Medical Association at the 107th Annual Meeting the American Medical Association, San Francisco, June 25, 1958.

Clinical Findings in Eighty-two Persons Who Had Experienced Syncope

Case No.	Age at Time of Syncope, Yr.	Clinical Incident Associated with Syncope	Findings on Investigative Procedures
1	31	Venipuncture	Atropine caused shift in pacemaker to atrial focus
2	12	Standing up	Near syncopal episode after release of breath-holding; cardiac rate decreased from 102 to 60/min.
	28	Fatigue, alcohol ingestion, bending over	
3	33	Alcohol ingestion	None
4	25	Standing in one position 3-4 hr.	None
5	23	Alcohol ingestion, warm, smoky room	Had syncope twice when placed on tilt table to obtain base-line blood pressure and electrocardiogram; sinus arrest with each episode and nodal escape beats
	23	Psychic trauma (dog hit by car); alcohol ingestion; warm room	
	24	Standing	
6	23	Urination	Near syncope with marked drop in blood pressure during breath-holding; syncope on breath-holding after hyperventilation; cardiac rate decreased from 110 to 65/min.
7	22	"Influenza"; deep breath	None
8	28	Flying at 31,000 ft.	Cold pressor test caused asystole and near syncopal episode
9	14	Had a "cold"; sitting in warm room	Syncope 2 min. after right carotid massage; heart rate decreased to 30/min. with precipitous fall in blood pressure
	23	Upper respiratory infection; syncope after hyperventilation in altitude chamber	
	24	Standing at attention	
10	25	Had just arisen and was preparing to wash (later proved to have grand mal seizures)	None; EEG normal
11	24	While piloting aircraft, suddenly lost 13,500 ft. of altitude; circumstances unknown; presumably momentary loss of consciousness	Near syncopal episode with marked drop in blood pressure when base-line studies were being recorded on tilt table
12	37	Felt something in his throat and turned to cough; lost consciousness before coughing	None
13	23	Gastroenteritis	None
14	32	Unexplained loss of consciousness while piloting aircraft; suggestion of difficulty with face mask; apparently not hypoxia, as he regained consciousness and made unsuccessful attempt to control aircraft	Breath-holding at height of inspiration resulted in lower nodal rhythm and syncope
15	36	Urination; fatigue; lack of food; alcohol ingestion	None
16	39	After vomiting; history of fatigue	None
17	24	Pain	None
18	29	Sudden loss of 16,000 ft. of altitude while piloting aircraft; apparent transitory loss of consciousness in flight	None
19	37	Topical application of anesthetic to eye for tonometer measurement	Breath-holding after hyperventilation resulted in decrease in heart rate from 135 to 66/min. with syncope
20	26	Standing at attention in sun	Near syncope after left carotid sinus massage. Heart rate slowed from 90 to 66/min.
21	23	While flying at 31,000 ft. turned in seat, became nauseated and dizzy, and lost consciousness	Repeated syncopal episodes after breath-holding, associated with asystole
22	30	Was in warm room, went outside, and either slipped on ice and fell or experienced syncope	None
23	35	Alcohol ingestion; large meal; standing up	None
24	25	Venipuncture	None
25	26	Defecation; gastroenteritis	None
26	35	Exertion; dieting	None
	35	Mowing the lawn; dieting	
27	34	Standing after bending	Breath-holding after hyperventilation was associated with A-V dissociation; no symptoms
28	18	Unexplained syncope while seated playing cards	Syncope when breath-holding at height of inspiration, associated with decrease in blood pressure without significant cardiac arrhythmia
29	22	Flying at 8,000 ft.; patient does not know what happened	None
30	26	Seated after exertion; lack of food and sleep	None
31	25	Pain	None
32	23	Shaving; lack of sleep; sunburn	None
33	25	Hyperventilation at 24,000 ft. in altitude chamber	None
	27	Hyperventilation at 24,000 ft. in altitude chamber	
	30	Walking	
34	23	Seated in classroom listening to lecture on disagreeable subject	None
35	22	Called to attention	Convulsion after left carotid sinus massage reproduced without decrease in heart rate or diminished blood pressure
	22	Convulsion after left carotid sinus massage	
36	27	Standing	Breath-holding demonstrated A-V dissociciation without symptoms
37	25	Standing in line for physical examination; fainted as he walked away from doctor after examination	Syncope after right carotid massage; cardiac rate decreased from 120 to 68/min.
38	28	Seated at table, rose from chair, and fainted; weight reducing; alcohol ingestion	None
39	18	Gastroenteritis	No special studies
	30	Back pain	
	30	Manipulation of back and production of pain (next day)	
40	37	Getting out of bed	No special studies
41	26	Alcohol ingestion	No special studies
42	36	Urination; had been hospitalized for possible myocardial infarction which he did not have; was watching TV program on myocardial infarction prior to acute episode of syncope; was nauseated	No special studies
43	23	Acrobatics and pulling 2½ to 3 G forces	No special studies
44	23	Aircraft let down while in hot cockpit; nauseated	No special studies
45	Childhood	Dental procedure	No special studies
	Childhood	Gastroenteritis	
	Childhood	Pain	
	Childhood	Sight of blood	
	38	Patient's child had nosebleed; patient fainted while assisting him	
	38	Venipuncture (next day)	
46	35	Straining at stool with painful bowel movement	No special studies
47	22	Acrobatics in back seat of aircraft	No special studies
48	40	Repeated near syncopal episodes with dental procedures	No special studies
49	37	Standing at racetrack watching racing cars; had been drinking with inadequate food intake; had previously been on reducing diet	No special studies
50	35	Walking into flight operations; fatigued from lack of sleep and food	None
51	23	Vomiting; became nauseated while listening to lecture on altitude chamber	No special studies
52	26	Fell out of bed and was apparently unconscious	No special studies
53	21	Local treatment of acute external otitis; developed pain and syncope	Nodal rhythm after stimulation of external ear; no other special studies
	21	Repeated syncopal episode with ear manipulation	
54	33	Gastroenteritis with dehydration and poor nutrition	No special studies
55	35	Standing after bending	No special studies
56	38	Hypoxia and hyperventilation in altitude chamber	No special studies

Clinical Findings in Eighty-two Persons Who Had Experienced Syncope—Continued

Case No.	Age at Time of Syncope, Yr.	Clinical Incident Associated with Syncope	Findings on Investigative Procedures
57	4	Hit on head with rock	No special studies
	15	Systemic febrile response to immunization	
	24	Teeth cleaned by dental technician	
58	26	Epigastric pain after eating; took several deep breaths and attempted to belch; syncope resulted	No special studies
59	21	Syncope with G forces; back pain	No special studies
60	23	Standing after extreme exertion	None
	23	Same as above	
61	33	Multiple injuries due to aircraft accident	Breath-holding after hyperventilation caused syncope with decreased blood pressure; during investigation patient developed nodal rhythm with syncope; carotid sinus massage produced bradycardia with near syncope
	35	Pressure breathing in altitude chamber at 43,000 feet; nodal rhythm with seizure	
62	24	Seated; acute gastroenteritis	No special studies
63	30	Pain	No special studies
64	Childhood	Syncope on sight of blood	No special studies
	26	Standing after bending over	
	26	Rapid decompression in altitude chamber; holding breath	
65	20	Standing during fraternity initiation after lack of sleep for 72 hr.	None
	26	Syncope resulting from G force intolerance	
66	27	Syncope on arising rapidly from bed	None
	33	Same as above	
	36	Same as above	
67	38	Pain	No special studies
	38	Manipulation of wound	
68	11	Getting out of bed after febrile illness	No special studies
	15	Standing 3 hr. in crowded room	
69	37	Pain	No special studies
	37	Bending over after exertion	
70	31	Getting out of bed	No special studies
71	27	Breath-holding rather than expiring during rapid decompression in altitude chamber	None
72	31	Sitting during lecture; lack of sleep; alcohol ingestion	None
73	22	Syncope after shower; felt dizzy	None
74	30	Vomiting; had a "cold" headache and had been drinking but denied inebriation	None
75	37	Urination	Syncope after right carotid massage and left carotid massage, with A-V dissociation and nodal rhythm
76	33	Suddenly standing	None
77	37	Starting to shave; lack of sleep; headache; chest pains	None
78	23	Apathetic episode during instrument check in aircraft; described as syncope by instructor	None
79	12	Getting out of bed after pneumonia	None
	20	Near syncope during venipuncture	
80	26	Flying; looking at radarscope	None
81	30	Standing in hospital room visiting son after tonsillectomy	None
	34	Standing at bar; syncopal episode after one drink	
82	21	Had a "cold"; chest being examined by physician; deep breaths	Breath-holding produced depression of SA node and shift to atrial focus followed by A-V dissociation; one episode of marked sinus depression with only one sinus impulse occurring over 6-sec. period; cardioinhibitory response prevented by atropine

Of the 55 subjects examined by the special techniques, 16 had a syncopal or near syncopal episode during the investigative procedures. An additional subject (case 53) had the onset of a nodal rhythm during external ear stimulation which resulted in syncope. This subject was not otherwise examined by the special technique. Of the 17 subjects who developed experimental syncope, in 13 the incident was associated with a cardiac arrhythmia or a marked decrease in cardiac rate. Four persons had syncope with insignificant changes in the cardiac rhythm.

In this series of 55 subjects, 17 developed a cardiac arrhythmia or marked cardioinhibitory response with or without syncope. Breath-holding induced cardiac arrhythmia in nine cases, including three examples of marked sinus bradycardia. In six of the nine cases the arrhythmia was associated with syncope. Breath-holding caused syncope in eight individuals. In one of these it was chiefly a vasodepressor response without significant arrhythmia.

It is interesting to note that 13 of these subjects experienced clinical syncopal episodes during flight. Five instances were attributed to G forces. Of the remaining eight persons, four developed experimental syncope associated with significant cardiac arrhythmias (cases 8, 11, 14, and 21).

Since syncope is regarded so casually by both the lay public and the medical profession, it is difficult to obtain many facts concerning its incidence or much factual information concerning its causes. The clinical histories of these 82 subjects point up the varied and intangible circumstances that might surround any syncopal episode.

Incidence

Very little information is available concerning the expected incidence of syncope in the general population or in various age groups. Guzman-Perry [1] studied 300 healthy young male students at college and postgraduate levels of training. He found a 15.5% incidence of fainting. Collins [2] studied a group of basic trainees in the U.S.A.F. and reported an incidence of 0.8% in applicants and 22.3% in nonapplicants for flying training. He attributed this discrepancy in incidence in two basically similar groups to the withholding of information on the part of the flying applicants, since a history of fainting would disqualify them for flying training.

Since the true incidence of syncope in any population has not been established, 5,000 questionnaires were sent to Air Force personnel. The questionnaires were to be returned unsigned in order to avoid any motivation to withhold information. In this manner it was hoped to obtain an incidence of syncope in an apparently healthy, young adult male population. Of the 5,000 questionnaires sent out, approximately 60% were returned. The age range of this population was 17 to 62 years, with an average age of 29.1 and a mode of 27.2. The reported incidence of true syncope in this study was

7%; loss of consciousness due to a severe blow to the body or head was found in 4% and both in 0.7% of the cases. The incidence of true syncope and loss of consciousness due to severe bodily trauma is broken down for the various age groups and presented in figures 1 and 2. It is recognized that a number of statistical objections could be raised against any such questionnaire survey. Nevertheless, the incidence of syncope in the returned questionnaires is interesting, even though it probably is not an exact incidence figure.

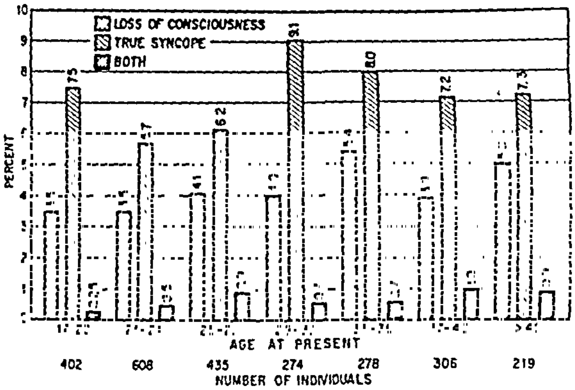

Fig. 1.—Incidence of syncope and loss of consciousness due to severe bodily trauma, by present age.

Mechanisms of Syncope

It is difficult to classify syncope because of the large number of possible underlying disorders and the variability of the acute precipitating factors. Weiss,[3] in 1935, presented a comprehensive study and discussion of syncope and syncope-like episodes. A more recent monograph by Engle[4] discusses the mechanisms and clinical characteristics of various types of loss of consciousness in the light of current physiological and psychological concepts. Many authors have chosen to consider or discuss one specific type of syncope.[5]

We have found the following classification of syncope to be simple and useful. It is based primarily on physiological mechanisms rather than on specific etiologies. Most mechanisms resulting in syncope can be grouped into one of six general categories: (1) venous (inadequate return of blood to the left heart), including systemic and pulmonary; (2) cardiac (ineffective pumping action); (3) loss of arteriolar tone (change in routing of blood flow); (4) blood qualitative changes (abnormalities in the constituents of the circulating blood); (5) blood quantitative changes (inadequate circulating volume); and (6) central nervous system (local disorders). More than one mechanism may be involved in any single episode of syncope, e. g., cardioinhibitory response with arteriolar dilatation.

Deficiencies in Venous Return.—Deficiencies in venous return, both in the systemic and pulmonary circulation, may result in syncope. Large varicosities of the lower extremities may trap blood peripherally, resulting in inadequate venous return, diminished cardiac output, and loss of consciousness. Venous pooling is one of the factors in orthostatic hypotension which contributes to syncope. Pressure breathing and the Valsalva maneuver may also inhibit adequate venous return.

The inspiratory effort at the onset of the Valsalva maneuver creates an increase in the negative intrapleural pressure and results in an initial increase in venous return to the right heart. This, in turn, causes an increased output of the right side of the heart. This increased output is trapped in the overexpanded pulmonary vascular bed, resulting momentarily in diminished venous return to the left side of the heart and diminished output on that side. Bearing down against the closed glottis tends to increase the intraalveolar pressure and squeeze the blood trapped in the lungs into the left side of the heart. The increased intrathoracic pressure inhibits further venous return to the right side of the heart, resulting in inadequate venous return. This is only one of the effects of the Valsalva maneuver. The breath-holding and resultant vagal stimulation may induce a cardioinhibitory response; this will be discussed below.

Other factors which may influence venous return to the left side of the heart include pressure breathing, visceral pooling, changes in venous tone secondary to orthostatic influences, and perhaps, to some extent, G forces. In this series of 82 patients not one example of varicosities could be implicated as contributing to or resulting in a syncopal episode. This would be expected because the subjects were initially selected as a healthy population. In addition, there were no cases which could be attributed solely to venous factors. A combination of venous and arteriolar factors are probably present in most postural or orthostatic adjustments and in tolerance to G forces. The one example of syncope after a Valsalva maneuver in this series may have been due to a deficiency of venous return and/or may have been associated with a cardiac arrhythmia.

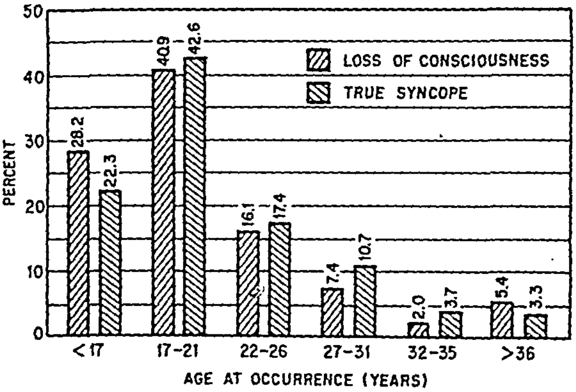

Fig. 2.—Percentage of episodes of syncope and loss of consciousness due to sever body trauma, by age of occurrence.

[illegible] Pumping Action of Heart.—Disturbances of the heart's pumping action may be due to disease of the endocardium, myocardium, or pericardium. In addition, a large variety of arrhythmias may result in syncope. In this healthy young adult male population, one would expect the incidence of syncope secondary to cardiac disease to be quite low, due to the previous screening examinations. None of the clinical syncopal episodes in this series could be attributed to underlying heart disease. Some, however, may have been due to cardiac arrhythmia, but this point can not be proved or disproved without better knowledge of the cardiac rhythm at the time of clinical syncope. In contrast, in evaluating the cardiovascular status of the subjects in this report, it was impressive to note the high incidence of cardiac arrhythmias associated with experimental syncope. By far the majority of these were induced by respiratory maneuvers, i. e., breath-holding or hyperventilation followed by breath-holding. These cardiac arrhythmias were induced in persons whose cardiac status was otherwise normal in all respects. It was also impressive to note that the most common method of inducing experimental syncope in the battery of special tests used was the breathing maneuvers. The majority of the arrhythmias were of the cardioinhibitory type. Two examples of cardiac arrest were noted (up to 12 seconds' duration) after simple breathing maneuvers. It has previously been demonstrated that significant cardiac arrhythmias may be induced by respiratory maneuvers, even with the subject in the recumbent position.[6] This fact argues against the response being solely a postural one.

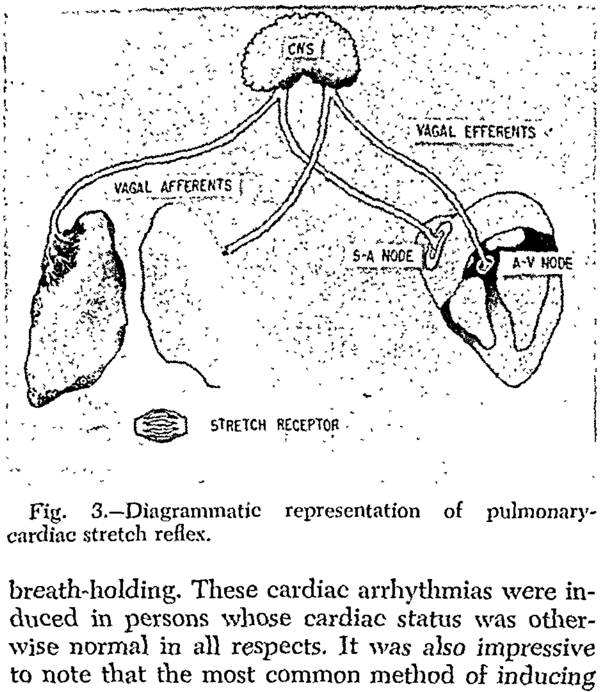

Fig. 3.—Diagrammatic representation of pulmonary-cardiac stretch reflex.

It is thought that the respiratory stimulation of the vagus nerve is the principal means of inducing the cardioinhibitory response in these individuals. The receptors and nerve pathways of such a reflex have been described. It is known as the pulmonary stretch reflex. Stretch receptors are located in the tracheobronchial tree, peripheral pulmonary parenchyma, and the visceral and parietal pleura. The receptors are stimulated by various respiratory maneuvers but primarily by inflation of the lungs. Impulses are carried via vagal visceral afferent fibers to their terminals in the sensory nucleus of the vagus and in the nucleus of the tractus solitarius. At this point their fibers come into relation with the neurons from the respiratory, vasopressor, and vasodepressor centers. Pathways from these centers descend to the spinal cord and also connect to the dorsal motor nucleus of the vagus. The efferent arc of this reflex is mediated via vagal autonomic fibers which arise from the dorsal nucleus as preganglionic fibers and go to the cardiac plexus. Postganglionic inhibitory fibers arise from the plexus and terminate in the sinoatrial and atrioventricular nodes.[7] The right vagus has its primary effect on the sinoatrial node and depresses impulse formation there, while the left vagus decreases the relative refractory period of the atrioventricular node (fig. 3). In most individuals stimulation of the stretch reflex results in varying degrees of cardiac slowing. Maximum slowing of the heart rate usually occurs at the height of the inspiratory effort. The efferent pathway for the pulmonary stretch reflex is the same as the efferent pathway of the carotid sinus reflex. The reflex can similarly be expected to cause a cardioinhibitory and/or a vasodepressor response.

It has been demonstrated that the cardioinhibitory response in susceptible individuals can be abolished by the administration of therapeutic doses of atropine (0.75-1.2 mg.). After adequate administration of atropine, other forms of cardiac arrhythmia induced by respiratory maneuvers could be prevented. In one example impending syncope was terminated by the intravenous administration of 1.2 mg. of atropine.

Atropine has been used by many investigators to induce syncope in subjects on the tilt table by increasing arteriolar and venous pooling.[8] When experimental studies are done in this manner, it is not likely that cardiac arrhythmias will be noted, as atropine will prevent the expected cardioinhibitory response. In this study a high incidence of cardiac arrhythmias was noted because atropine was not administered until after the breathing maneuvers and other stresses were carried out.

The demonstration that cardiac arrhythmias and syncope may be induced by stimulation of the pulmonary stretch reflex has direct application to any occupation, activity, or medical procedure which may involve simple respiratory maneuvers. It is common practice in aviation to use pressure breathing. The susceptible person may have a hyperactive response to stimulation of the pulmonary stretch reflex inducing cardiac asystole and syncope. Hyperventilation is not uncommon on exposure to altitude. The pilot who holds his breath when hyperventilation is noted may stimulate the pulmonary stretch reflex, induce a cardiac arrhythmia, precipitate a syncopal episode, and be listed as having an unexplained aircraft accident. At least three unexplained sudden deaths are known to us which have occurred in persons engaged in breath-holding in underwater swimming or diving.

Artificial respiration in the operating room is an everyday occurrence. The lungs are regularly inflated by the anesthesiologist. Cardiac arrhythmias and, in fact, cardiac arrest are not unknown in the operating room. It is suggested that one of the mechanisms which may induce cardiac arrest at the time of surgery is stimulation of the pulmonary stretch reflex during artificial respiration. Small preoperative doses of atropine (0.4 mg.) are inadequate to abolish the vagal effect of the pulmonary stretch reflex.

It is possible that intermittent postive-pressure breathing, as used on medical wards, may also stimulate this reflex in susceptible individuals and could result in cardiac arrhythmia and syncope.

As is often the case, man discovers empirically methods of protecting himself when exposed to new or strange environments. Early in aviation, it was learned that the Valsalva maneuver could produce syncope. A modification of the Valsalva maneuver, now termed the M1 maneuver, was found to be most useful in increasing G tolerance during flight. In this M1 maneuver, after a deep breath is taken, rather than holding the breath in deep inspiration the person expires forcefully against a partially closed glottis, resulting in a loud yell or scream. Not only may exhaling in this manner immediately after inspiration favorably influence the mechanical factors associated with circulation, but also it abolishes further stimulation of the pulmonary stretch reflex. Thus, a correctly performed M1 maneuver serves to protect against development of significant cardiac arrhythmias which may be induced by the simple Valsalva maneuver.

Loss of Peripheral Arteriolar Resistance.—The third basic mechanism which may result in syncope is a loss of peripheral arteriolar resistance. Pain, alcohol, and true orthostatic hypotension are some examples which may affect arteriolar tone. In addition, everyone is familiar with the sensation of lightheadedness first experienced on arising after having been confined to bed for an acute illness. Any febrile illness may also decrease normal arteriolar tone, as may heat, exhaustion, or fear. Mechanical influences, such as positive G forces, may overcome normal peripheral resistance. Disturbance in arteriolar tone appears to be one of the more frequent mechanisms involved in clinical syncope. Peripheral arteriolar resistance may also be diminished in association with cardioinhibitory responses. In experimental syncope induced in these studies, a number of subjects were noted to have both a marked fall in blood pressure associated with decreased arteriolar tone and cardioinhibitory response with decreased heart rate.

Qualitative Changes in Circulating Blood.—A fourth group of contributing or sole etiological factors in clinical syncope includes qualitative changes in the circulating blood. This includes such factors as toxins, hypoxia, changes in acid-base and electrolyte balance, and anemia. In this series, direct toxins, carbon monoxide, and hypoxia were found to be infrequent causes of syncope despite the fact that all the subjects were flying personnel. True hypoglycemia could not be demonstrated to be the cause of a single episode of syncope. This may be due to the fact that hypoglycemia is more frequently associated with disturbances in mental state rather than true syncope.[9] It is possible that those individuals with relatively low blood sugar levels have a diminished tolerance to stress and are therefore more syncope-prone. When a significant anemia is present, cardiac output is increased and circulation time is decreased. This is a compensatory mechanism to provide adequate oxygenation to the body tissues, including the central nervous system. Under normal circumstances the circulatory system could perhaps adjust to a given stress. When an underlying anemia is present, the circulatory system is already compromised and the same amount of stress is capable of producing syncope.

Quantitative Change in Circulating Blood.—Decreases in the amount of the circulating blood may cause an individual to be more syncope-prone. Acute blood loss is the most obvious cause of decreased circulating blood volume. Dehydration from any cause may also diminish the circulating blood volume. In 7% of the clinical episodes of syncope in this series, dehydration secondary to gastroenteritis was a sole or major contributing factor.

Disorders of Central Nervous System.—Disorders in function of the central nervous system comprise another large group of causes of clinical syncope. This includes hemorrhage, e. g., from berry aneurysm in young persons, cerebral thrombosis, tumor, infection, metabolic changes, convulsive disorders, and other diseases of the brain and spinal cord. During experimental procedures carried out on two of the subjects in this series, it was clearly demonstrated that cardiac arrhythmias producing changes in circulatory dynamics preceded any evidence of central nervous system malfunction. In both cases an electroencephalogram was recorded and showed changes only after significant circulatory abnormalities had occurred.

Since the pulmonary stretch reflex's role in the production of cardiac arrhythmia and syncope is relatively unknown and was the most frequent cause of experimental syncope in this series, two cases illustrating this mechanism are presented.

Report of Cases

Case 21.—A 23-year-old pilot lost consciousness while flying between 31,000 and 37,000 ft. (cabin altitude 10,000-12,000 ft.) in a B-47. The aircraft had been airborne approximately seven hours, and he had been breathing oxygen. While seated, he turned to the right to "shoot the stars" when he noted the onset of nausea and dizziness. The next thing he remembered was someone reaching over him to check his oxygen equipment. He had lost consciousness and slipped to the floor. There were no other associated signs, symptoms, or residuals. The flight was terminated, and one-half hour later the patient was examined by a physician. Physical examination and laboratory studies were unremarkable.

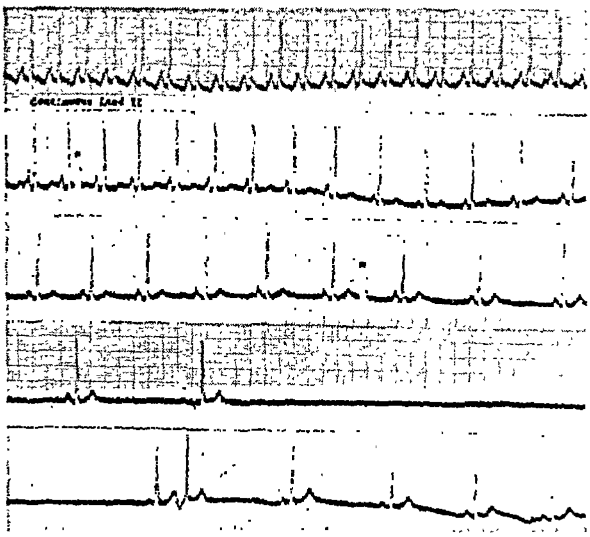

Fig. 4 (case 21).—Continuous recording of standard lead 2 during breath-holding. Nine-second period of asystole was associated with syncope. Episode was terminated by tilting of patient to horizontal position.

Subsequent follow-up and extensive diagnostic studies, including hematology, urinalysis, chest and skull x-rays, determination of blood sugar level, electrocardiogram, and electroencephalogram, were unremarkable. During the special syncope studies, when the patient took a deep breath and held it his cardiac rate slowed from 116 to 100 per minute. With the onset of breath-holding, there were two ventricular premature contractions in bigeminal fashion. The conduction then changed from sinus tachycardia to atrioventricular dissociation. After 27 seconds of breath-holding, the rate suddenly decreased to 60 per minute, and at the 36th second a six-second period of asystole followed by a sinus escape beat occurred. The patient was pale, perspiring, and clammy. After 47 seconds of breath-holding he released his breath and the shift was made to sinus bradycardia with a rate of 48 per minute. His mentation was slow, and he complained of "dizziness." At the 16th second of the recovery period he developed a three-second period of asystole, terminated with one sinus beat and followed by another three-second period of asystole. This was followed by three sinus beats and a 12-second period of asystole. The period of cardiac arrest was terminated by two ventricular impulses. During the period of asystole the patient lost consciousness. He was tilted to the horizontal position, and a normal sinus rhythm reappeared. The patient recovered.

After suitable periods of recovery, essentially the same series of events were reproduced with hyperventilation immediately followed by breath-holding and by breath-holding alone. The only difference was the appearance of nodal escape beats during the periods of asystole. With 0.75 mg. of atropine, the above sequence of events was prevented on two occasions.

Five days after the initial studies, the patient returned for repeated study. Again, whenever the patient held his breath his cardiac rate slowed, changed to atrioventricular dissociation, and then periods of asystole developed which were associated with a disturbance of or actual loss of consciousness (fig. 4). Atropine again prevented the development of arrhythmia and the loss of consciousness on two occasions.

Case 82.—A 21-year-old aviation cadet visited his flight surgeon because of symptoms and signs of an upper respiratory infection. His oral temperature was 101 F (38.3 C). During auscultation of his chest, the patient was asked to breath deeply and then to hold his breath. He apparently began to sway and had to be helped to a chair. The cadet then became flaccid and lost consciousness. Examination of the heart revealed a rate of 48 per minute and an irregular rhythm. Within 10 minutes an electrocardiogram was taken and blood drawn for determination of blood sugar level. These and other studies showed findings within normal limits.

He was hospitalized for four days and treated for his upper respiratory infection. No other abnormalities were noted on extensive physical and laboratory examination. There was no previous history of syncope or seizures.

The patient was referred to the School of Aviation Medicine where physical examination and laboratory studies, including hematology, urinalysis, determination of fasting blood sugar level, routine electrocardiogram, Master's double exercise tolerance test, altitude chamber flight with electrocardiogram, and skull and chest x-rays, were unremarkable. During the special cardiovascular studies, on every occasion that the patient held his breath during inspiration, on or off the tilt table and with and without preceding hyperventilation, his cardiac rate would suddenly slow. There would be a shift in the pacemaker either to another area in the sinoatrial node or to an atrial focus. With continued breath-holding, the pacemaker would revert to the original focus. This shift in pacemaker would occur two or three times during one period of breath-holding.

During one of these periods of breath-holding, while the patient was standing, there was a sudden slowing of the cardiac rate from 118 to 60 per minute. Associated with this, the patient became pale and began to perspire. In the next three seconds, the cardiac rate further slowed, to 40 per minute, and then there was a three-second period of asystole terminated by one normal sinus beat and followed by another three-second period of asystole. The cadet began to sway, his mentation was slow, he was cold and clammy, and syncope appeared imminent. He was placed in bed and recovered rapidly. The cardiac rate returned to 90 per minute. One atrial premature contraction appeared, followed by atrioventricular dissociation, and the pacemaker then shifted to a secondary focus. Over the next 30 seconds of recovery, atrioventricular dissociation reappeared. The pacemaker again shifted to the secondary focus and finally returned to the primary focus in the sinoatrial node. These changes in rate and conduction appeared with the patient in bed (fig. 5).

Atropine (0.75 mg.) was administered intravenously on two occasions in an attempt to prevent the changes in conduction and rhythm associated with breath-holding. On both these occasions changes in conduction, rhythm, and syncope did not occur.

Summary and Conclusions

Although syncope may be considered lightly under many circumstances, its occurrence in industry, in an automobile, and in aviation may cause a major disaster. A better understanding of mechanisms precipitating syncopal episodes and their likelihood of recurrence can lead to prevention of accidents resulting from syncope and perhaps prevent syncopal episodes at crucial times.

This report is an analysis of syncope occurring in flying personnel. Extensive studies were done in 82 subjects to ascertain the mechanisms involved in their syncopal episodes.

It has been found convenient to consider mechanisms precipitating syncope under six general types of disorders: (1) inadequate venous return; (2) inefficient cardiac pumping action; (3) loss of arteriolar tone; (4) abnormalities in the constituents of the circulating blood (qualitative blood changes); (5) inadequate circulating blood volume (quantitative blood changes); and (6) local disorders of the central nervous system. More than one of these mechanisms may be involved in any episode of syncope.

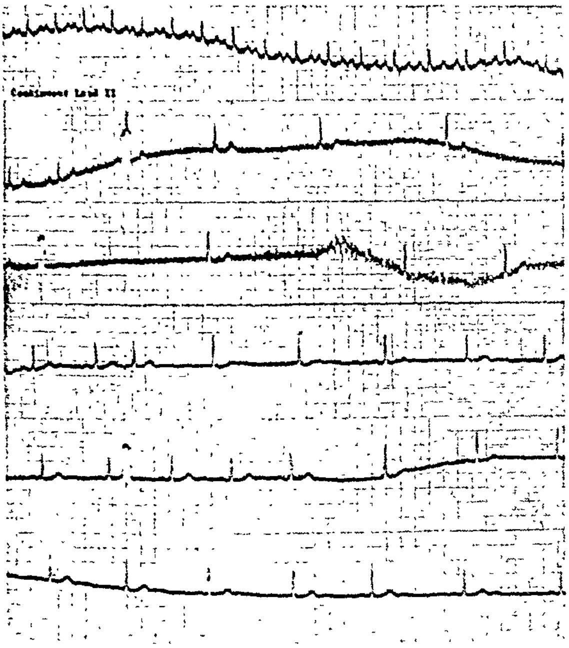

Fig. 5 (case 82).—Standard lead 2 recorded during breath-holding in standing position (first three graphs), and during recovery period (second three graphs) while patient was lying in bed. Periods of asystole were associated with near syncopal episode.

The cardiac arrhythmias are a major factor in causing inefficient pumping action of the heart. This report emphasizes the frequency of cardiac arrhythmias induced by the pulmonary stretch reflex. The stretch reflex is stimulated by common breathing maneuvers such as breath-holding and also by pressure breathing. Susceptible persons may have various cardiac arrhythmias and/or loss of peripheral arteriolar resistance with subsequent loss of consciousness. This simple chain of events may be responsible for some unexplained deaths occurring in activities involving breath-holding, e. g., underwater swimming. The stretch reflex may be stimulated after prolonged exertion. It is of particular importance in all occupations involving pressure breathing, altitude exposure, and other forms of respiratory stimulation. It is suggested that the stretch reflex may play a significant role in the operating room by producing cardiac arrhythmias and cardiac arrest during artificial respiration.

The vagal response to the stretch reflex is abolished by atropine administration. Recognition of the role of the stretch reflex in syncope and cardiac arrest, as well as a means of its prevention, has immediate application in industry and medicine.

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SIDE-EFFECTS NOTED IN TREATMENT WITH METHYLPREDNISOLONE (MEDROL)

REPORT OF SEVENTY-SEVEN CONSECUTIVE CASES

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Sixty-seven patients and 10 healthy volunteers received treatment with methylprednisolone, with special attention to its side-effects. The largest groups of patients in the series were those with rheumatoid arthritis (18), intrinsic asthma (14), and disseminated lupus erythematosus (10). The purpose was to see whether the drug could be given in doses sufficient to exert the anti-inflammatory and other therapeutic effects of prednisone and prednisolone without widespread functional disturbances. Disturbances of body weight occurred in 40 subjects, with obesity in 14. Acne was seen in 9 and mental changes in 8; a variety of other symptoms are here tabulated. Ten cases are reported in detail, showing both the desired and the undesired effects of the drug. It promptly reduced the photophobia, lacrimation, and discomfort of the three patients with exophthalmos, but it also produced rounding of the face with other symptoms of adrenal cortical hyperfunction. Attempts to avoid these unpleasant effects by reducing the dosage led each time to the immediate return of the original symptoms. There is evidence that methylprednisolone has a stronger anti-inflammatory effect than do prednisone and prednisolone, but each patient must be evaluated carefully before it is used, and the minimal effective doses should be used for the smallest necessary time interval.

The corticosteroids are firmly established in the medical armamentarium as useful drugs in a variety of diseases. Other than as replacement therapy for adrenal insufficiency, their main application arises from their anti-inflammatory effect. Their usefulness is limited by their toxicity, and the potential hazards of steroid administration must be recognized by the physician who elects to use them. Since the introduction of cortisone in 1949 and hydrocortisone in 1951, chemical tailoring of these two molecules has been aimed in two directions: to increase the anti-inflammatory action and to decrease the side-effects (defined here as simply exaggerated manifestations of the usual physiological effects of these compounds). In the latter area, particular attention has been given to sodium retention and potassium diuresis. The synthesis in 1955 of the delta-1 steroids, prednisone and prednisolone, increased the anti-inflammatory action approximately threefold while reducing the chief undesirable side-effects. In 1957 a methyl radical was attached to the number 6 carbon atom of prednisolone to produce methylprednisolone (Medrol). Animal studies[1] showed this drug to possess from two and one-half to five times the anti-inflammatory action of prednisone. Feinberg and co-workers[2] reported that the maintenance dose of methylprednisolone in treatment of allergic diseases was about the same as or slightly lower than that of prednisone. DiRaimondo and Forsham[3] have reported this drug to have 33% greater anti-inflammatory effect than prednisolone and 60% more than prednisone.

Since there has been no previous publication devoted to the clinical side-effects of this potent new corticosteroid, we are reporting our experience in treating 77 consecutive patients with this drug. Selected case reports are also given.

Clinical Material

Sixty-seven patients at the University of Wisconsin Hospitals and Student Infirmary and 10 normal subjects, who were part of a metabolic study conducted at the Lackland Air Force Base Hospital, constitute the series reported in these observations. In the 67 patients, the conditions being treated were as follows: rheumatoid arthritis, 18; disseminated lupus erythematosus, 10; intrinsic asthma, 14; chronic ulcerative colitis, 6; hemorrhagic diseases, 3; exophthalmos, 3; chronic relapsing uveitis, 1; serum sickness, 2; sarcoid of Boeck, 1; farmer's lung, 1; malabsorption syndrome, 1; angioneurotic edema, 1; atopic eczema, 1; herpes zoster, 1; poison ivy, 4.

Dosage of methylprednisolone and duration of treatment are given in the table. All patients were on general diets unless otherwise indicated, although an attempt was made to increase calorie and protein intake in the underweight and diminish

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calorie consumption in the obese persons. Most of the patients were initially hospitalized and subsequently followed up at regular intervals as outpatients. Others were seen at intervals of one week to one month as outpatients. A special effort was made to note the side-effects. Serum electrolyte balance and urinary glucose level were measured at least once monthly. Upper gastrointestinal x-rays with use of barium-contrast medium were not obtained unless epigastric symptoms appeared, and then stools were also examined for occult blood and red blood cell indexes obtained.

Results

All the side-effects observed are listed in the table. It is not the purpose of this paper to cite the therapeutic results obtained with methylprednisolone, but, in general, these compared favorably with those of prednisone and prednisolone. Not infrequently, however, somewhat smaller doses of the methyl derivative were successfully substituted for the delta steroids with comparable anti-inflammatory effect, indicating a higher potency of methylprednisolone. Our experience in using methylprednisolone in disseminated lupus erythematosus and rheumatoid arthritis will be the subject of another paper. Some of the important side-effects will be described here in detail.

Obesity.—Fat distribution characteristic of that seen in patients with adrenal cortical hyperfunction with Cushing's syndrome was noted in 14 patients, 4 of whom had had this finding prior to methylprednisolone administration. In two of these patients there was believed to be some diminution of the supraclavicular and cervical fat pads and moon face. Although individual variation was noted, it appeared that doses exceeding 12 mg. per day for periods of two months or longer could be expected to produce this type of obesity in most patients.

Hypertension.—Hypertension was not a significant finding in this study. Nine patients had preexisting hypertension, and no exacerbation was noted with therapy. Several patients with lupus erythematosus had progressive hypertension which was thought to be due to their underlying disease and not to the drug, since increasing the dose did not aggravate the hypertension nor did decreasing the dose diminish it. In only one patient was there a rise in blood pressure which was considered to correlate with the dose of the drug. This was in an elderly man with chronic ulcerative colitis in whom a previous labile hypertension had been noted and in whom hypertension had also followed ACTH therapy prior to the use of methylprednisolone.

Electrolyte Balance Changes.—No serum sodium or potassium level changes that could be attributed to methylprednisolone were observed. Ten young Air Force volunteers received methylprednisolone for one week as part of a more detailed metabolic study (to be reported later). Each of the patients was male, between the ages of 18 and 23 (with two exceptions, ages 39 and 41), and had normal renal, cardiovascular, hepatic, and endocrine functions. Under carefully controlled conditions, these metabolic studies during methylprednisolone administration at both 16 and 32 mg. for 24-hour levels showed that sodium clearance was slightly decreased, potassium clearance was not significantly altered, creatinine clearance was slightly increased,

Side-effects Noted from Methylprednisolone in Seventy-seven Patients

	Patients, No.	Dose, Mg./Day	Duration of Therapy, Mo.	Comment
Obesity (moon-face, fat pads)	14	12-28	3-7	Preexisted in 4 from previous steroid therapy
Hypertension	1	8	3½	Previous labile hypertension
Striae	1	24	4	
Purpura	0			
Plethora	7	12-28	2-7	
Hypertrichosis	7	6-32	2-7	
Acne	9	8-28	2-7	
Osteoporosis	0			All patients studied 1-7 mo. were ambulatory
Edema	0			
Serum electrolyte balance changes	0			
Weight gain	30			
	10	16-32	1 wk.	Normal subjects in metabolic study; av. gain, 1½ lb. (0.7 kg.)
	6	8-16	1-7	Ulcerative colitis group; av. gain, 10 lb. (4.5 kg.)
	14	4-16	1-6	Collogen disease; some on high-protein, high-calorie diet; av. gain, 5-18 lb. (2.3-8.2 kg.) without edema
Weight loss	10	4-28	1-7	6 with arthritis also on weight-reduction diets; in 2 with lupus erythematosus attributed loss to severity of underlying disease
Convulsions	2	16	4-7 days	1 also had uremia & lupus erythematosus; other was known epileptic (case 4)
Glycosuria	1	14	4	Transient, normal glucose tolerance findings
Infections	0			
Thrombophlebitis	1	16	1	51-year-old man with ulcerative colitis
Headache	0			Several with hypertension had headache, but not attributable to drug
Menstrual changes	0			
Mild GI symptoms (bloating, dyspepsia)	4	6-32	1-4	Upper GI x-rays negative; symptoms relieved with antacids
Peptic ulceration	2			
	1	16	4 days	Complicated by previous prednisone therapy associated with epigastric symptoms, by uremia, and by subsequent intravenously given hydrocortisone; autopsy diagnosis (case 3)
	1	28	4	
Chronic hypercortisonism*	1	12-28	7	Case 1
Mental changes	8			
Mild personality change	5	12-32	2-7	Euphoria, mood-swings, increased doctor-dependence
Depression, insomnia, restlessness	3	12-28	4-6	Mitigated by decreasing dose when necessary
Acute psychosis	0			

* Generalized myalgia, arthralgia, crying spells, emotional mood-swings.

and aldosterone excretion was not significantly altered. It was concluded from this study that methylprednisolone has very little effect on sodium or potassium clearance and excretion in these doses and during the brief time interval employed.

Weight Changes.—In the metabolic study with 10 normal patients, there was an average weight gain in one week of 1½ lb. (0.7 kg.). Of the 10 patients with disseminated lupus erythematosus, 7 gained weight (3 to 16 lb. [1.3 to 7.3 kg.]) and two lost weight (4 to 10 lb. [1.8 to 4.5 kg.]) during treatment. Seven patients with rheumatoid arthritis gained 5 to 18 lb. (2.3 to 8.2 kg.), without discernible edema, while on high-protein, high-calorie diets. Eight patients with this disease lost weight; six were on reduction diets, and the remaining two lost 5 and 7 lb. (2.3 and 3.2 kg.) respectively.

Glycosuria.—Only one patient developed glycosuria noted on a routine outpatient visit. A subsequent glucose tolerance test while the patient was still receiving 14 mg. per day of methylprednisolone was within the normal range.

Infection.—At least two chest x-rays were available for each patient treated for a period of longer than two months. There was neither evidence of exacerbation of latent infection nor masking of known infection.

Steroid Ulcers.—Because it was deemed desirable to note any ulcerogenic effect, no patient was given a bland diet, antacids, or anticholinergic drugs when methylprednisolone was administered. Four patients complained of bloating and dyspepsia. Results of upper gastrointestinal x-rays with barium were negative. One was receiving 32 mg. per day, another 16, and two were receiving 12 mg. per day of methylprednisolone when their symptoms appeared. When roentgenographic findings were negative, they were given antacids four times daily, with the disappearance of their symptoms, while steroid therapy was continued. One patient experienced reactivation of an old duodenal ulcer with mild hemorrhage while on therapy with 28 mg. per day of methylprednisolone (see case 3 below). Two of the Air Force subjects in the metabolic study had previously proved duodenal ulcers. Neither developed epigastric symptoms or tenderness while receiving either 16 or 32 mg. daily during the weeks of study.

Psychotic Episodes.—No episodes of acute psychosis were precipitated during this study. However, mild personality changes developed in five patients, characterized by mood swings, some euphoria, and increased doctor-dependence. Three of the patients noted insomnia. One individual who had disseminated lupus erythematosus complained bitterly of restlessness and emotional upset, with periods of weeping and depression, while at other times having a sense of euphoria. It was concluded that she was manifesting chronic hypercortisonism, and her symptoms were improved with a slow reduction of dosage (see case 1 next column).

Report of Cases

CASE 1.—A 39-year-old woman with a diagnosis of disseminated lupus erythematosus has been followed for four years. She has persistently had positive findings on L.E. cell preparations, hyperglobulinemia, polyarthritis, hypertension, maculopapular facial rash, and abnormal urinary sediment. She had also had pleural effusion, pericarditis, and congestive heart failure. She was treated satisfactorily with salicylates and/or chloroquine phosphate for the first year and one-half, but cortisone was deemed necessary in August, 1955, and since that time she has received one or another of the corticosteroids. In November, 1957, she developed symptoms that were compatible with a diagnosis of chronic hypercortisonism (myalgia, arthralgia, emotional disturbances, and a peripheral neuropathy manifested by shooting pains in the legs, hyporeflexia, hypalgesia, and hypesthesia with a stocking-like distribution). These symptoms were superimposed on previous features similar to those of patients with adrenal cortical hyperfunction with Cushing's syndrome, so that the possibility of their being caused by steroids was seriously entertained. Efforts to achieve good results with a reduction of the dose of prednisone to below 20 mg. per day failed. However, 16 mg. per day of methylprednisolone was successfully substituted. Over the next four weeks she was able to reduce this to 12 mg. per day, but no further reduction was possible. Indeed, in 10 weeks her condition again escaped control, and it was necessary to increase the dose to as high as 28 mg. per day. During the first month of receiving doses of 20 mg. per day or more, she complained of hypertrichosis, insomnia, and severe restlessness. These symptoms diminished during the subsequent two months, and she was maintained satisfactorily on therapy with 14 mg. per day. Although this patient had shown progressive hypertension during the course of her disease and required vigorous antihypertensive therapy, no change in the degree of hypertension was observed with either increase or decrease in the dose of methylprednisolone, so that the hypertension would appear to be a part of her underlying disease and not drug-induced or drug-aggravated.

CASE 2.—A 22-year-old university student had received 1,200,000 units of benzathine penicillin because of a positive finding of beta hemolytic streptococcus on throat culture. Fourteen days later he developed severe polyarthritis, generalized pruritic, morbilliform rash, generalized lymphadenopathy, and severe edema of the face, hands, and feet. This was not relieved by penicillinase injections, antihistamines, or ephedrine. He was given 4 mg. of methylprednisolone every six hours and was completely free of symptoms within 24 hours. He was maintained on decreasing doses of the steroid for two weeks until the penicillin reaction was anticipated to have cleared. His course was uneventful. No side-effects were noted.

CASE 3.—A 53-year-old woman with known severe intrinsic asthma, pulmonary emphysema, and chronic duodenal ulcer was admitted in status asthmaticus. Epinephrine, antibiotics, bronchodilators, oxygen, sedatives, and a slow intravenous drip of iodide with aminophylline were of no avail. An infusion of bovine ACTH produced sudden, severe dyspnea and cyanosis, which responded to intravenously given epinephrine. She slowly responded to large doses of orally given methylprednisolone (28 mg. per day) together with the above medicaments (except ACTH). Melena and moderate epigastric pain occurred on the fourth day of this regimen. X-ray studies revealed no ulcer crater, but chronic deformity of the duodenal bulb was identified and was assumed to be the site of her bleeding. The patient was given a strict ulcer regimen while treatment with methylprednisolone at a dose of 12 mg. per day was continued. Occult blood disappeared from the stool within four days; epigastric symptoms and tenderness were gone within one week. She has been followed up for three months with continued methylprednisolone therapy without recurrence. A modified ulcer program has been maintained.

Case 4.—A 17-year-old male volunteer (as part of the metabolic study) was given 16 mg. of methylprednisolone for one week. He was known to have epilepsy, but he was otherwise in good health. He had not had a grand mal seizure in six weeks, being well-controlled with 100 mg. of sodium diphenylhydantoin given twice daily; this therapy was continued throughout the steroid study. After receiving methylprednisolone for three days, he had a grand mal seizure which lasted about four minutes, and a similar seizure occurred the next day. There were none subsequently. The possibility exists that methylprednisolone precipitated these seizures, since other corticosteroids are known occasionally to do so, as well as producing electroencephalographic changes in predisposed persons.

Case 5.—A 27-year-old man with a nine-year history of chronic ulcerative colitis was found on initial evaluation at the student infirmary to have a typical "lead-pipe" colon that was diffusely friable, bleeding and ulcerated rectosigmoidal mucosa, and pseudopolyps in the sigmoid with a 1-cm. polyp in the descending colon. He was having eight to nine loose stools daily; often these were blood-streaked. Methylprednisolone, 16 mg. per day, was given in an effort to improve his general condition and to permit him to take his doctoral examination before colectomy. Treatment was followed by prompt reduction in the number of stools to one to two a day and symptomatic improvement. After six months he had gained 18 lb. (8.2 kg.), and marked improvement of the rectosigmoid was observed proctoscopically. X-ray examination with use of a barium enema showed no change in either the colon or the polyp. He is at present scheduled for total colectomy with probable ileostomy. This patient experienced many of the typical features of adrenal cortical hyperfunction (Cushing's syndrome): moon face, supraclavicular fat pad, and mild plethora. No other side-effects have occurred.

Case 6.—A 40-year-old man with a 20-year history of chronic relapsing iridocyclitis of unknown eitology awakened one morning with marked tenderness, conjunctival injection, and total blindness in his left eye. Slit-lamp examination confirmed the exacerbation of his iridocyclitis, and he was placed on therapy with 40 mg. of methylprednisolone daily for three days, with gradual reduction in dosage over a two-week period. He noted rapid subjective improvement with prompt loss of pain and discomfort. Some improvement in vision occurred so that he could distinguish light and count near objects within three days after treatment was begun. He remarked that his response to methylprednisolone was unusual in that he did not develop the moon face or other features of adrenal cortical hyperfunction with Cushing's syndrome which he had previously experienced while on similar brief courses of therapy with cortisone or hydrocortisone. No side-effects occurred during the three weeks of therapy.

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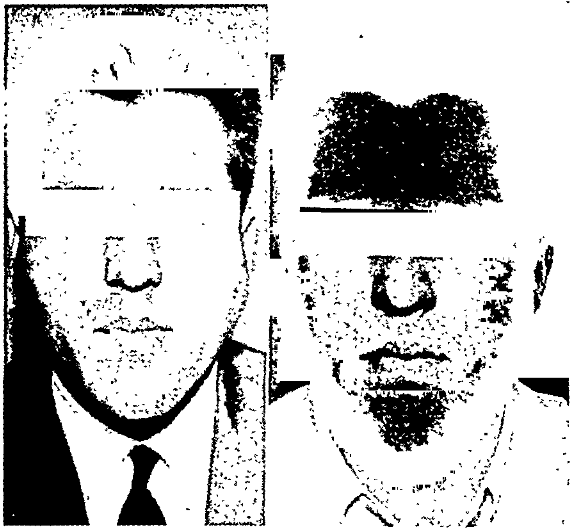
Cases 8-10.—Three patients with severe "thyrotoxic" or "thyrotropic" exophthalmos were treated with methylprednisolone in doses up to 32 mg. daily. All responded favorably and promptly, with rapid reduction in photophobia, lacrimation, and the intense sense of irritation that previously had been present. Rounding of the face and an appearance strikingly similar to that of patients with adrenal cortical hyperfunction with Cushing's syndrome developed at this level of dosage in all three patients. Attempts at reduction of the dosage to avoid these unpleasant effects led each time to the immediate return of the original symptoms. All steroid therapy eventually was discarded, and it was concluded that the hazards of this form of management probably outweigh the benefits and that methylprednisolone does not possess any distinctive advantages over other steroid compounds in the treatment of this condition.



Parotid swelling in patient with sarcoid of Boeck (case 7): *left,* before treatment with methylprednisolone; *right,* two weeks after treatment.

Comment

It is not our intent to imply that corticosteroids are necessarily the treatment of choice for the diseases herein reported. Most of these patients had been on nonsteroidal or other steroidal therapy before methylprednisolone was used. It is to be emphasized that corticosteroids are seldom, if ever, curative and that their use should always be accepted as a "calculated risk." The minimal effective dose should be given over the smallest period of time needed to accomplish the desired response. It is preferable to "get in and out" of steroid therapy if possible. Whenever long-term maintenance therapy is necessary, the physician assumes the responsibility of frequently observing the patient for side-effects and constantly trying to reduce the dose so that serious side-effects are prevented.

and aldosterone excretion was not significantly altered. It was concluded from this study that methylprednisolone has very little effect on sodium or potassium clearance and excretion in these doses and during the brief time interval employed.

Weight Changes.—In the metabolic study with 10 normal patients, there was an average weight gain in one week of 1½ lb. (0.7 kg.). Of the 10 patients with disseminated lupus erythematosus, 7 gained weight (3 to 16 lb. [1.3 to 7.3 kg.]) and two lost weight (4 to 10 lb. [1.8 to 4.5 kg.]) during treatment. Seven patients with rheumatoid arthritis gained 5 to 18 lb. (2.3 to 8.2 kg.), without discernible edema, while on high-protein, high-calorie diets. Eight patients with this disease lost weight; six were on reduction diets, and the remaining two lost 5 and 7 lb. (2.3 and 3.2 kg.) respectively.

Glycosuria.—Only one patient developed glycosuria noted on a routine outpatient visit. A subsequent glucose tolerance test while the patient was still receiving 14 mg. per day of methylprednisolone was within the normal range.

Infection.—At least two chest x-rays were available for each patient treated for a period of longer than two months. There was neither evidence of exacerbation of latent infection nor masking of known infection.

Steroid Ulcers.—Because it was deemed desirable to note any ulcerogenic effect, no patient was given a bland diet, antacids, or anticholinergic drugs when methylprednisolone was administered. Four patients complained of bloating and dyspepsia. Results of upper gastrointestinal x-rays with barium were negative. One was receiving 32 mg. per day, another 16, and two were receiving 12 mg. per day of methylprednisolone when their symptoms appeared. When roentgenographic findings were negative, they were given antacids four times daily, with the disappearance of their symptoms, while steroid therapy was continued. One patient experienced reactivation of an old duodenal ulcer with mild hemorrhage while on therapy with 28 mg. per day of methylprednisolone (see case 3 below). Two of the Air Force subjects in the metabolic study had previously proved duodenal ulcers. Neither developed epigastric symptoms or tenderness while receiving either 16 or 32 mg. daily during the weeks of study.

Psychotic Episodes.—No episodes of acute psychosis were precipitated during this study. However, mild personality changes developed in five patients, characterized by mood swings, some euphoria, and increased doctor-dependence. Three of the patients noted insomnia. One individual who had disseminated lupus erythematosus complained bitterly of restlessness and emotional upset, with periods of weeping and depression, while at other times having a sense of euphoria. It was concluded that she was manifesting chronic hypercortisonism, and her symptoms were improved with a slow reduction of dosage (see case 1 next column).

Report of Cases

Case 1.—A 39-year-old woman with a diagnosis of disseminated lupus erythematosus has been followed for four years. She has persistently had positive findings on L.E. cell preparations, hyperglobulinemia, polyarthritis, hypertension, maculopapular facial rash, and abnormal urinary sediment. She had also had pleural effusion, pericarditis, and congestive heart failure. She was treated satisfactorily with salicylates and/or chloroquine phosphate for the first year and one-half, but cortisone was deemed necessary in August, 1955, and since that time she has received one or another of the corticosteroids. In November, 1957, she developed symptoms that were compatible with a diagnosis of chronic hypercortisonism (myalgia, arthralgia, emotional disturbances, and a peripheral neuropathy manifested by shooting pains in the legs, hyporeflexia, hypalgesia, and hypesthesia with a stocking-like distribution). These symptoms were superimposed on previous features similar to those of patients with adrenal cortical hyperfunction with Cushing's syndrome, so that the possibility of their being caused by steroids was seriously entertained. Efforts to achieve good results with a reduction of the dose of prednisone to below 20 mg. per day failed. However, 16 mg. per day of methylprednisolone was successfully substituted. Over the next four weeks she was able to reduce this to 12 mg. per day, but no further reduction was possible. Indeed, in 10 weeks her condition again escaped control, and it was necessary to increase the dose to as high as 28 mg. per day. During the first month of receiving doses of 20 mg. per day or more, she complained of hypertrichosis, insomnia, and severe restlessness. These symptoms diminished during the subsequent two months, and she was maintained satisfactorily on therapy with 14 mg. per day. Although this patient had shown progressive hypertension during the course of her disease and required vigorous antihypertensive therapy, no change in the degree of hypertension was observed with either increase or decrease in the dose of methylprednisolone, so that the hypertension would appear to be a part of her underlying disease and not drug-induced or drug-aggravated.

Case 2.—A 22-year-old university student had received 1,200,000 units of benzathine penicillin because of a positive finding of beta hemolytic streptococcus on throat culture. Fourteen days later he developed severe polyarthritis, generalized pruritic, morbilliform rash, generalized lymphadenopathy, and severe edema of the face, hands, and feet. This was not relieved by penicillinase injections, antihistamines, or ephedrine. He was given 4 mg. of methylprednisolone every six hours and was completely free of symptoms within 24 hours. He was maintained on decreasing doses of the steroid for two weeks until the penicillin reaction was anticipated to have cleared. His course was uneventful. No side-effects were noted.

Case 3.—A 53-year-old woman with known severe intrinsic asthma, pulmonary emphysema, and chronic duodenal ulcer was admitted in status asthmaticus. Epinephrine, antibiotics, bronchodilators, oxygen, sedatives, and a slow intravenous drip of iodide with aminophylline were of no avail. An infusion of bovine ACTH produced sudden, severe dyspnea and cyanosis, which responded to intravenously given epinephrine. She slowly responded to large doses of orally given methylprednisolone (28 mg. per day) together with the above medicaments (except ACTH). Melena and moderate epigastric pain occurred on the fourth day of this regimen. X-ray studies revealed no ulcer crater, but chronic deformity of the duodenal bulb was identified and was assumed to be the site of her bleeding. The patient was given a strict ulcer regimen while treatment with methylprednisolone at a dose of 12 mg. per day was continued. Occult blood disappeared from the stool within four days; epigastric symptoms and tenderness were gone within one week. She has been followed up for three months with continued methylprednisolone therapy without recurrence. A modified ulcer program has been maintained.

CASE 4.—A 17-year-old male volunteer (as part of the metabolic study) was given 16 mg. of methylprednisolone for one week. He was known to have epilepsy, but he was otherwise in good health. He had not had a grand mal seizure in six weeks, being well-controlled with 100 mg. of sodium diphenylhydantoin given twice daily; this therapy was continued throughout the steroid study. After receiving methylprednisolone for three days, he had a grand mal seizure which lasted about four minutes, and a similar seizure occurred the next day. There were none subsequently. The possibility exists that methylprednisolone precipitated these seizures, since other corticosteroids are known occasionally to do so, as well as producing electroencephalographic changes in predisposed persons.

CASE 5.—A 27-year-old man with a nine-year history of chronic ulcerative colitis was found on initial evaluation at the student infirmary to have a typical "lead-pipe" colon that was diffusely friable, bleeding and ulcerated rectosigmoidal mucosa, and pseudopolyps in the sigmoid with a 1-cm. polyp in the descending colon. He was having eight to nine loose stools daily; often these were blood-streaked. Methylprednisolone, 16 mg. per day, was given in an effort to improve his general condition and to permit him to take his doctoral examination before colectomy. Treatment was followed by prompt reduction in the number of stools to one to two a day and symptomatic improvement. After six months he had gained 18 lb. (8.2 kg.), and marked improvement of the rectosigmoid was observed proctoscopically. X-ray examination with use of a barium enema showed no change in either the colon or the polyp. He is at present scheduled for total colectomy with probable ileostomy. This patient experienced many of the typical features of adrenal cortical hyperfunction (Cushing's syndrome): moon face, supraclavicular fat pad, and mild plethora. No other side-effects have occurred.

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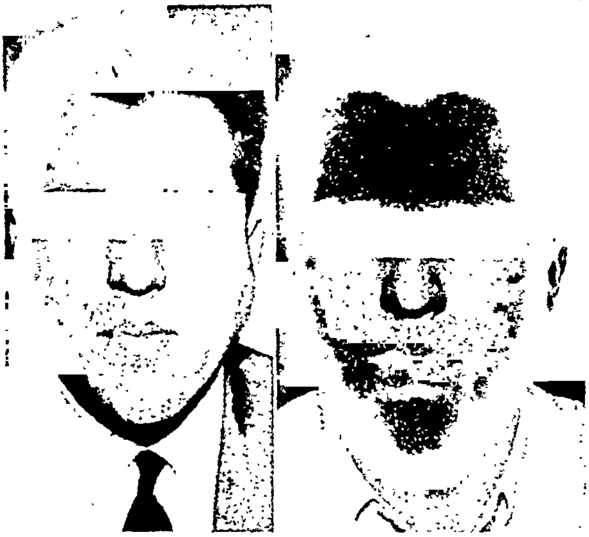

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Comment

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Continued modification of the corticosteroid molecule will doubtless produce, in the future, even more potent anti-inflammatory drugs. This can be advantageous to the clinician only if the side-effects can be further minimized and if no new ones are added. It seems highly probable, however, that the major objective manifestations of adrenal cortical hyperfunction are truly the exaggerated physiological effects of the 11-oxygenated steroids of which suppression of inflammation and pituitary inhibition are inseparable parts. If this is true, then further "tailoring" of the molecule may lead to additional changes in the spectrum of biological activity, but always in the direction of a "supercortisone" which still manifests its most important and dangerous metabolic effects. Viewed in this light, there would appear to be an inescapable ceiling on the improvements that are possible in the cortisone-like steroids.

A classification of the side-effects of corticosteroids used in clinical medicine is as follows: This classification is based on the importance of the side-effect to the patient insofar as it is a statistically minor or major risk. Class 1 side-effects are virtually inevitable results of employing suppressive doses as maintenance therapy. The redistribution of fat, striae, acne, excessive hair growth, and plethora reflect an excessive amount of anti-inflammatory hormones present, but when the corticosteroids are truly needed in such doses and for such duration, the cosmetic inconvenience to a patient should not be a serious consideration. All corticosteroids available today will produce class 1 side-effects when given in sufficient doses and for sufficient time.

In class 2 are diabetes mellitus, steroid ulcers, convulsions, thrombophlebitis, hypertension, such mental changes as psychosis, electrolyte disturbances with or without edema, spread or masking of infections, and protein catabolism. These are all potentially major hazards of corticoid therapy. But their infrequency of occurrence, particularly with the newer corticoids, relegates them to a minor role when the patient is not predisposed to any of these side-effects beforehand. Each patient should be carefully evaluated before steroid administration from the point of view of development of these potentially hazardous complications. If the patient is not felt to be predisposed to any of these side-effects, then treatment may be begun, though not with immunity or without continued observations but with a statistically minor chance of producing these complications.

Class 3 side-effects do not preclude the use of corticosteroids, but the greater risk must be recognized, prophylaxis must be employed where possible, and closer observation of the patient is mandatory. With a family history of diabetes, occasional glycosuria, or borderline findings on the glucose tolerance test, the development of diabetes must be recognized as an acceptable risk of steroid therapy. When a patient has a history of peptic ulcer or, perhaps, even chronic epigastric complaints, the use of steroids must be accepted as a class 3 risk. If the benefits still outweigh the possible hazards, an ulcer regimen should be employed concurrently. In epileptic patients the use of the newer, non-edema-producing steroids will probably be attended with fewer steroid-induced seizures. Nevertheless, in treating such a person with steroids, the possibility of inducing seizures should be accepted as a major possible side-effect.

When obese or bedridden patients are treated with steroids, the possibility of thrombophlebitis should be recognized as a potential hazard. Elastic stockings or elastic bandages and ambulation, when possible, should be employed prophylactically. The production of mental changes, including an acute psychosis, during steroid therapy is not a major side-effect in most patients. But, in the emotionally labile, the borderline schizophrenic, and similar persons, steroid-precipitated psychosis must be given serious consideration. Edema formation, electrolyte balance disturbances, and hypertension do not seem to be so frequent with the newer corticosteroids. But, in a patient with preexisting labile or persistent hypertension, the administration of corticosteroids may well cause an exacerbation of hypertension, so that a potential major complication should be recognized before steroid therapy is begun.

It has been our impression that the spread of latent infection or the masking of disseminated infections in patients receiving steroid therapy is not a common occurrence unless the patient is predisposed by underlying serious disease. Special precautions should be employed to exclude latent tuberculosis, which may be reactivated by this form of treatment. In the presence of cirrhosis, carcinomatosis, lymphomatosis, and similar diseases, steroid therapy to the bedridden patient with cachexia is fraught with the hazard of dissemination of infection, and without the patient showing the usual signs or symptoms of the infection. Even prophylactic broad-spectrum antibiotics seem to be of little benefit to such patients. Protein catabolism attends the prolonged use of all currently available corticosteroids. Muscle wasting and osteoporosis is a minor hazard in nonpredisposed patients, but with bedridden and elderly patients or those with cachexia, special attempts to prevent this complication by using gonadal hormones, a high-protein diet, and ambulation should be made.

Chronic hypercortisonism has been reviewed by Slocumb and associates[4] and is produced by prolonged administration of large doses of any of the currently available steroid preparations. The symptoms are increased fatigability, emotional instability, and generalized muscular and joint aching. We have not found chronic hypercortisonism to be a necessary attendant of prolonged administration of suppressive doses of steroids in all patients. Just how some patients are predisposed to this syndrome is not clear. For the present, the possible production of chronic hypercortisonism as well as diffuse panmesenchymal reactions must be considered a major potential hazard of long-term steroid therapy in some patients. Its presence demands the tedious and slow reduction of the dosage, encouragement of the patient, extra rest, and other measures. All patients receiving significant doses of steroids for prolonged periods of time have secondary adrenal insufficiency as a result of pituitary inhibition. They depend entirely on exogenous corticoids to cope with their daily stresses. This must be recognized as a necessary hazard of steroid therapy before patients are committed to treatment. No predisposition is necessary for this side-effect. All patients receiving significant doses for maintenance therapy must be expected to have adrenal insufficiency. When such major stresses as trauma, infection, and surgery occur, an approximately threefold increase in the dosage of steroids must be employed until the stress has been removed. When steroid therapy is eventually discontinued, this should be done very gradually, and preferably by decrease of the morning doses first, since 70% of the endogenous adrenal cortical output of hydrocortisone is believed to occur between midnight and 10 a. m.[3]

In view of all these side-effects, it is imperative that each patient be evaluated carefully before steroids are employed and that the minimal effective doses be used for the smallest necessary time interval.

The side-effects of methylprednisolone noted in these 77 patients compare favorably with the generally accepted toxicity of prednisone and prednisolone for the doses and the time intervals employed. No unique side-effects were observed. Since the anti-inflammatory effect of this drug has been reported to be 33% greater than prednisolone and 60% greater than prednisone, it appears to be a valuable drug in the medical armamentarium, although continued clinical observation and experience with such a potent drug will be necessary.

Summary

Seventy-seven consecutively treated patients were observed for a period of up to seven months (mean duration of therapy, four and one-half months) while receiving methylprednisolone for various illnesses. The side-effects noted are comparable to those previously attributed to prednisone and prednisolone. No unique side-effects that could be attributed to this drug were observed.

The chief advantage of methylprednisolone seems to be in its enhanced anti-inflammatory effect, while it maintains the relatively low degree of toxicity exhibited by prednisone and prednisolone.

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The methylprednisolone used in this study was supplied as Medrol through Drs. Hubert C. Peltier and Harold L. Upjohn of the Upjohn Company, Kalamazoo, Mich.

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PULMONARY OBSTRUCTION.—The control of the trigger factor, such as pulmonary infection precipitating cardiac failure, is of paramount importance. Digitalization, oxygen administration, and other supportive measures should be administered. We should like to warn against the use of opiates and intensive antimony treatment, the latter being toxic to the myocardium. These patients may remain asymptomatic for an indefinite period of time. Increasing knowledge of this condition and the opportunity to diagnose it clinically will enable us to better evaluate the treatment and prognosis of these patients. At present the prognosis is apparently poor once cardiac decompensation supervenes. The governing factor in the short longevity of these patients is the mechanical impairment caused by the irreversible pulmonary arterial and arteriolar obstruction. We agree with other reports that patients with a pronounced increase in pulmonary artery pressure are in a continual danger of death and hence are poor surgical risks.—J. Marchand, M.D., R. A. Marcial-Rojas, M.D., Roberto Rodriquez, M.D., Gerardo Polanco, M.D., R. S. Diaz-Rivera, M.D., The Pulmonary Obstruction Syndrome in Schistosoma Mansoni Pulmonary Endarteritis, *A. M. A. Archives of Internal Medicine,* December, 1957.

EMERGENCY COMMISSUROTOMY IN INTRACTABLE PULMONARY EDEMA

REPORT OF TWO CASES

Hans U. Wessel, M.D.
and
James R. Webster Jr., M.D., Chicago

Acute, intractable pulmonary edema appeared in a patient who was being prepared for mitral commissurotomy. The operation was postponed, and the patient died. There was reason to believe that immediate performance of the operation would have given the patient a chance to survive. Accordingly, in two other patients, with mitral stenosis, who developed pulmonary edema refractory to medical treatment, the operation was done at once. The improvement was immediate, and both patients survived. Since pulmonary edema may set in suddenly during diagnostic procedures or during preparations for surgery, the possible need for emergency commissurotomy must be kept in mind, but it is better to follow the patient closely and to advise surgery before intractable pulmonary edema becomes an imminent threat.

Mitral commissurotomy is usually done as an elective procedure. The patient is operated on after an optimal state of cardiac compensation has been achieved. We first became personally acquainted with the problem of mitral stenosis in which mitral commissurotomy was performed as an emergency procedure because of intractable pulmonary edema in 1955 when a 22-year-old woman was admitted to Chicago Wesley Memorial Hospital for mitral commissurotomy. She gave no history of rheumatic fever. Two years prior to admission she began to have progressive exertional dyspnea, palpitation, and precordial pain with radiation to the left arm and shoulder.

Physical examination, x-ray studies, and the electrocardiogram (ECG) were diagnostic of rheumatic heart disease and mitral stenosis. Right heart catheterization confirmed the clinical impression, showing marked elevation of the right ventricular, pulmonary artery, and pulmonary venous capillary pressures. The cardiac output was diminished and the mitral valve area was estimated to be about 0.5 sq. cm.

The patient was digitalized on admission and taken to surgery three days later. She was given morphine sulfate, atropine, and scopolamine on the morning of surgery. After she had received about 50 mg. of thiopental (Pentothal) intravenously, she suddenly developed acute pulmonary edema. There was marked cough productive of a bloody, frothy sputum, hyperventilation, and wet rales throughout both lungs. The pulse rate increased to 150-200 per minute. A portable x-ray confirmed the diagnosis of severe, acute pulmonary edema. The patient was taken back to her room. Treatment with morphine sulfate, oxygen by mask, and intermittent positive-pressure breathing and antibiotics was of no avail. The temperature rose to 104 F (40 C) rectally. After an initial slight improvement the patient's condition deteriorated rapidly and she died the following day.

Autopsy revealed mitral stenosis with evidence of active rheumatic myocarditis. There was hypertrophy and dilatation of the heart, particularly the right side. Chronic, passive hyperemia was present in the lungs, kidneys, spleen, and liver. The lungs weighed 2,000 Gm. and were quite firm in consistency. Microscopic sections revealed pulmonary edema, bronchopneumonia, and diffuse interstitial fibrosis. Death in this patient was attributed to pulmonary edema and bronchopneumonia. In retrospect it was thought that this patient should have undergone mitral commissurotomy in spite of her precarious condition and that opening of the mitral valve with relief of the obstruction offered the only chance for survival.

During the next two years, we observed two additional patients with mitral stenosis who suddenly developed severe, intractable pulmonary edema. In the first patient this was precipitated by right heart catheterization; in the other by an acute upper respiratory infection. Both patients were operated on during the state of pulmonary edema which medical management had failed to improve. Both patients survived and, in both, relief of obstruction at the mitral valve was almost immediately followed by clinical improvement of the pulmonary edema.

Report of Cases

Case 1.—A 29-year-old woman was admitted to Chicago Wesley Memorial Hospital for cardiac catheterization. She gave no history of rheumatic fever. Seven years before, during labor, she was first seen by a heart specialist and told that she had heart disease. She remained asymptomatic until one and a half years prior to admission. At this time progressive exertional dyspnea, palpitation, and cough began. There were several episodes of hemoptysis. Ankle edema had appeared three months before admission and the patient had been digitalized.

On physical examination she was well developed and nourished. Inspiratory wheezes were heard throughout the lungs. There was no venous distention or abnormal arterial pulsations. The cardiac rhythm was regular at a rate of 90 per min-

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From the Cardiovascular Laboratory, Chicago Wesley Memorial Hospital, and the Department of Medicine, Northwestern University Medical School.

ute; blood pressure was 120/80 mm. Hg. The left heart border could be percussed 14 cm. to the left of the midsternal line in the fifth intercostal space. A right ventricular parasternal thrust was felt and a diastolic apical thrill was palpable. There was an apical, middiastolic, low-pitched rumble ending in a presystolic crescendo. The murmur was transmitted to the left axilla and toward the back. The pulmonic second sound was louder than the aortic second sound, and the first sound was loud and snapping over the mitral area. The liver was palpated one finger breadth below the right costal margin. There was no peripheral edema. X-ray showed moderate left atrial and right ventricular enlargement. There was dynamic distention of the main-stem pulmonary artery and minor engorgement of the pulmonary vasculature. The ECG showed right ventricular hypertrophy and strain and sinus tachycardia. Rare fusion beats were observed.

During right heart catheterization the patient developed acute pulmonary edema. The pulse rate increased to 150 per minute and she became cyanotic and extremely restless. Treatment with morphine sulfate, aminophylline, lanatoside Cedilanid C, rotating tourniquets, and oxygen breathing with intermittent positive pressure afforded no improvement. The patient showed only minimal response to subsequent intubation, oxygen breathing, and defoaming with ethyl alcohol mist and venesection. Immediate mitral commissurotomy appeared to offer the patient her only chance of survival.

At surgery, the lungs were of liver-like consistency and showed very little evidence of aeration. The left atrium was entered through the left atrial appendage. No thrombi were found. The mitral valve was so stenotic that no orifice could be felt with the examining finger. A pea-sized mass of calcium was attached to the lateral leaflet near the orifice on a flexible pedicle which hopped up into the atrium during systole and fell into the mitral orifice during diastole. After considerable manipulation, it was possible to finger fracture the match-sized orifice and to dilate it to finger size. This opened the anterior commissure for a distance of 1 to 1.5 cm. During the manipulation, the calcium piece disappeared into the circulation. The carotid arteries were compressed during each manipulation of the valve.

During one of the manipulations the heart went into ventricular fibrillation. Cardiac massage was begun and electrical defibrillation carried out. This threw the heart into asystole. With subsequent massage and injection of calcium chloride into the right ventricle, a normal rate and sinus rhythm was restored after two to three minutes. The patient was given 400 mg. of procainamide intravenously.

The anterior commissure was finally opened for about 2 to 2.5 cm. The posterior commissure could not be opened because of marked shortening and matting of the papillary muscles and chordae tendineae and their fusion with the valve leaflets. At the termination of the procedure the lungs, previously of liver-like consistency, were partially aerated and pink in color. The peripheral portions were soft and pliable and well aerated.

A tracheotomy was performed and the patient's respiration assisted with a Bennett respirator during the day after surgery. The cyanosis cleared within three days and within five days there was no radiographic evidence of pulmonary edema. Nine days after surgery the tracheotomy tube was removed. During the entire postoperative course, the blood pressure remained stable at normotensive levels and the urinary output was adequate. The temperature remained elevated for 10 days. A respiratory alkalosis with hyperpotassemia corrected itself after discontinuation of the respirator. The patient was discharged on the 23rd postoperative day. Maintenance digitalization has been continued. There has been no arrhythmia or decompensation currently (28 months after surgery). She is in functional class 2 according to the American Heart Association classification.

Case 2.—This 49-year-old man was admitted to Chicago Wesley Memorial Hospital on the evening of Feb. 13, 1958, in acute pulmonary edema. He was known to have rheumatic heart disease with mitral stenosis and atrial fibrillation. Two weeks before admission he contracted an upper respiratory infection. He remained at home for five days and received penicillin and symptomatic treatment. On the day of admission, he experienced a return of the chills, fever, generalized malaise, and cough. He left work and went home, at which time he became quite dyspneic. He was brought to the hospital for examination. He had noted no chest pain, ankle edema, palpitation, or sudden gain in weight. On admission, he appeared to be acutely ill and was extremely dyspneic and cyanotic. Blood pressure was 165/115 mm. Hg, pulse 140 and irregular, temperature 101 F (38 C) rectally. His lungs were filled with wet, noisy rales and no heart tones could be heard because of this interference. There was no hepatosplenomegaly and no peripheral edema.

Treatment consisted of oxygen, aminophylline intravenously, rotating tourniquets, venesection, and penicillin. There was immediate improvement, and two hours after admission the chest was clear except for some rales at the right base. With the patient in the left lateral decubitus position, a middiastolic apical murmur could be heard. That evening the leukocyte count was 57,000 per cubic millimeter, with 96% segmented neutrophils, 2% lymphocytes, and 2% monocytes. Nonprotein nitrogen level was 31.5 mg.%; fasting blood sugar level was 107 mg.%, and sedimentation rate (Wintrobe) was 35 mm. in the first hour, with urine normal. An ECG showed atrial flutter with a variable block and an atrial rate of 450. There was also evidence of right ventricular hypertrophy and digitalis effect. A chest x-ray revealed engorgement of the pulmonary vessels with an increased density of the lungs indicative of pulmonary edema. The heart was moderately enlarged with a markedly enlarged left atrium.

He did well for 18 hours after admission. Chloramphenicol was added to therapy because a sputum smear showed a large number of staphylococci. Sputum culture later showed only staphylococci and vancomycin was also given. His color and breathing were good and he rested comfortably during the day. On the next evening the patient once more experienced an episode of pulmonary edema which was again relieved by morphine, aminophylline, oxygen, and rotation tourniquet. However, this second attack lasted considerably longer and was more difficult to control. His temperature rose to 104.6 F (40 C). Even after the acute pulmonary edema had cleared, he continued to have rales and slight dulness at the right base.

On Feb. 15, he once again went into pulmonary edema. This time he was quite refractory to all therapeutic measures previously employed. Meperidine (Demerol) given intravenously and aminophylline temporarily improved his condition. However, he remained in subacute pulmonary edema. Immediate relief of the mitral stenosis appeared to offer the only chance for survival. On opening the chest, it was noted that the lungs had the consistency of liver and appeared to be poorly aerated. Little expansion of the lung could be seen, even with intermittent positive-pressure breathing. The left atrium was entered through the left atrial appendage which contained several thrombi. The mitral valve orifice was located in the posterior third of the valve and was too small to admit a fingertip. Satisfactory opening of the valve was achieved by a commissurotomy knife. By the time the pericardium was closed, the liver-like consistency of the lung had disappeared and the lung appeared soft and well aerated and of a bright pink color. This dramatic change occurred within a few minutes after the valve had been opened. However, blood pressure dropped precipitously and respiration became irregular. Intermittent positive-pressure breathing through the endotracheal tube resulted in improvement and stabilization of blood pressure.

He was returned to his room much improved over his preoperative status. The lungs were appreciably clearer with only a few rales present at the right base. The temperature was 105 F (40.56 C) rectally. During the next few days the temperature gradually decreased, as did the leukocyte count, and the lungs became almost completely clear. The day after surgery the nonprotein nitrogen level was 95%; the creatinine 3.6 mg.% and the carbon dioxide 18 mEq. This azotemia responded to conservative management. He was discharged one month after admission and 27 days after surgery. At this time the nonprotein nitrogen level was 30 mg.%, the chest x-ray showed no infiltrates, and an ECG showed a coarse fibrillation with a ventricular rate of 80.

Comment

Pulmonary edema in mitral stenosis cannot be explained on the basis of left heart failure. The basic physiological derangement is impedance to blood flow from the lungs due to obstruction at the mitral valve. With a given area, the pressure gradient across the mitral valve is directly proportional to the square of the flow across the orifice.[1] Thus any rise in cardiac output must be accompanied by a rise in left atrial pressure which is transmitted backward into the pulmonary venous, capillary, and arterial system. Theoretically pulmonary edema should occur if the pulmonary capillary pressure exceeds the osmotic pressure of the plasma and the lymphatics are unable to drain the excessive filtrate.

Common precipitating factors are sympathetic stimulation caused by excitement, exertion, exposure to cold, fright, and anger leading to tachycardia and vasoconstriction. Tachycardia results in a shorter diastole with further impairment of left atrial emptying. Vasoconstriction produces redistribution of the blood with its accumulation in the lungs.[2] Robin and Thomas [3] in a study of patients in whom a postmortem diagnosis of pneumonia and pulmonary edema had been made at the Peter Bent Brigham Hospital reported a close interrelationship between these two entities and stated that they frequently coexist and that the occurrence of one predisposes to the development of the other.

Pregnancy in patients with mitral stenosis commonly predisposes to pulmonary edema. Lawler and Gallagher,[4] in a study of mitral stenosis and commissurotomy during pregnancy, reported a rise of cardiac output and blood volume early in pregnancy leading to a 32 to 60% increase above nonpregnant levels by the 28th and 32nd week. This was followed by a moderate decrease until delivery, postpartum rise, and ultimate return to previous levels. Baker and co-workers in 1952 [5] recommended commissurotomy for the treatment of relapsing pulmonary edema, and presented nine patients on whom emergency mitral commissurotomy was performed, with one death. Bailey [6] reported that his patients who had previously suffered from pulmonary edema did well during surgery and had good results. It was his opinion that "history of acute paroxysmal pulmonary edema . . . would seem to urge prompt intervention lest a subsequent attack prove fatal." Bramwell,[7] in a review of the hazards of pregnancy in women with heart disease, spoke in the same tenor when he stated "pulmonary edema is in fact one of the most urgent indications for mitral valvotomy." The same view was expressed by Mulcahy [8] in 1957. He advised emergency valvotomy if pulmonary edema persisted in spite of medical treatment. He reported on 132 cases of heart disease seen during pregnancy within a five-year interval. Of these patients 71 had pure mitral stenosis, 15 mitral stenosis and insufficiency, 15 combined mitral and aortic disease, 9 pure mitral insufficiency, 9 had aortic stenosis or incompetence, and 6 had congenital heart lesions. Seven of these patients underwent mitral commissurotomy because of progressive deterioration. O'Connell and Mulcahy [9] reported an emergency mitral commissurotomy performed because of intractable edema. The patient survived. Another case of emergency mitral commissurotomy during pulmonary edema with survival was reported in 1957 by Dellepiane.[10] The case reported by Krauss and co-workers [11] was a quasi emergency mitral commissurotomy in a woman whose cardiac status had deteriorated rapidly since the fourth month of gestation and she went into pulmonary edema during cardiac catheterization. This patient also survived and had a good result. In contrast, Bramwell [7] saw 11 deaths due to heart failure in pregnancy. In this group were 7 of 16 patients with mitral stenosis who developed pulmonary edema. None of these underwent surgery.

The results of mitral commissurotomy in cases such as ours and those cited above should, as a rule, be good. Good results can be anticipated in patients whose pulmonary hypertension is primarily due to obstruction at the mitral valve, and who are not "protected" against pulmonary edema by secondary precapillary pulmonary arteriolar stenosis and/or chronic right heart failure. Hence, the occurrence of pulmonary edema may mean that a good result will be obtained from surgery, since it requires reasonably good cardiac function for it to develop. However, even though emergency mitral commissurotomy during a state of intractable pulmonary edema affords a fair chance of survival with a good result, it is obvious that operation is preferable before such an emergency situation occurs. Our foremost obligation to our patients with mitral stenosis is to study and follow each one carefully and to advise surgery before pulmonary dynamics make intractable pulmonary edema likely.

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THERAPEUTIC CONTRIBUTIONS OF THE DOCTOR OF PHYSICAL MEDICINE

APPLICATION IN THE CLINICAL PRACTICE OF MEDICINE

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The functions of a physiatrist include administration, diagnosis, therapy, and research. For successful therapy it is necessary that he choose modalities, specify times and intensities, make sure of the proper psychiatric approach to the patient on the part of all who administer treatment, and adjust the treatment in general to the needs and responses of the patient. Two case histories illustrate how lesser physical ailments can lead through circumstances to prolonged disability and how physical therapy based on correct diagnosis can relieve the physical condition and rehabilitate the patient. If valuable methods of treatment are not to be misused and neglected, physicians must prepare themselves to use the modern clinical approach offered by physical medicine and to avail themselves of the necessary ancillary services.

In a previous paper the functions of a physiatrist were described.[1] They are administration, diagnosis, therapy, and research. In addition, frequently he has coordinative functions designed to integrate the ancillary services into a central team for successful psychosocioeconomic adjustment of the patient. The role of the specialist of physical medicine as a diagnostician has been elaborated on in detail and supported with a variety of clinical material which clearly illustrated that treating patients with haphazard or tentative diagnoses may lead to poor results or even to untoward consequences to the patient.

A great many factors other than diagnosis deserve serious consideration if we are effectively to attain the desired therapeutic goal. Some of these are the choice of modality, the mode of administration of treatment, dosage, the *proper psychiatric approach* of those who treat the patient, the patient's inner conflicts, his reaction to the disease, undue prolongation or abrupt interruption of treatments, secondary gains, and, sometimes, even malingering. The purpose of this paper is to explain the reasons why the awareness of these factors is important in the attainment of therapeutic goals and why the clinical acumen of the physiatrist who is usually in charge of therapies is vital and why his services should be available at all times.

Proper Modality

In selecting the proper modality for the treatment of a patient there are a number of considerations. Some of these stem from the effect of the agent and some from the reaction of the patient.

The effect of a physical agent, just like the effect of a drug, can, as a rule, be anticipated. For example, we know that diathermy, infrared lamps, and ultrasonics are heat modalities. Thus, we use them to improve local circulation either by direct heating or by reflex vasodilatation to hasten removal of inflammatory waste products, to allay pain, and to reduce muscle spasm. It should be kept in mind, however, that the random selection of such heat modalities for therapy will result in a great many disappointments not only by poor results but sometimes by deleterious effects to the patient. The reason is that these three modalities develop heat as their principal effect; nevertheless, their mechanism of production, side-effects, and physical characteristics are widely different, creating specific

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indications and contraindications that the clinician must keep in mind in selecting them. It may be all right to prescribe infrared heat for many conditions, such as malignancy, osteomyelitis, or postfracture with metallic implants, but diathermy is contraindicated because it may hasten metastasis by its deep penetration, it may have decalcifying effect on the bone, and it will overheat metallic implants.[2] Ultrasonic energy may be a fine modality for many nonparalytic neuropathies, but for others it may be harmful, since it may aggravate weakness as has been shown on animal experiments with electromyography.[3] This discussion could go on not only in regard to these modalities that have been selected to illustrate the point but in regard to all other physical agents, even those as divergent as massage, electrical stimulation, or the many forms of therapeutic exercises.

The other major consideration in the selection of a modality is the reaction of the patient. Here we must think of such factors as general physical condition, age, sex, and individual reactivity. The general physical condition of patients must be considered in prescribing physical treatments; for example, one does not expose a debilitated restless individual to ultraviolet rays because chances are that he may become more restless and irritable. Age is another factor to be considered; hot foot soaks are dangerous in an older person who may have arterial insufficiency in the limbs. Sex also has discriminating limitations; for instance, ultrasonic energy over the lower abdomen of a female patient is not recommended because of the selective sensitivity of the ovaries to this form of physical agent.[3] Individual reactivity cannot be predicted in advance unless the patient's history furnishes such information. An unsuspected individual susceptibility may create uncomfortable situations or even a dire emergency. I remember such a case rather vividly. I prescribed for the patient histamine ion transfer for wry neck. He was in the hospital for a chronic neurological condition, but one morning he woke up with painful, tender muscles in spasm in the posterior aspect of his neck. It is known that histamine as a counterirritant may be helpful, in addition to massage and mobilization exercises, in such a case. He gave no history of asthma, hay fever, or other allergic manifestations. Nevertheless he had individual intolerance to this agent, inasmuch as in 30 to 60 seconds after initiation of this treatment he developed a severe reaction, consisting of generalized urticaria, headache, and feeling of tightness in his chest. It necessitated prompt discontinuation of treatment. He needed epinephrine for relief to prevent a full-blown asthmatic attack. Individual sensitivity is not at all an oddity. A patient, not long ago, had pain in the lower part of her back. As I was taking her history, she found that diathermy was contemplated for her. She immediately stated, "Oh, no! I get a severe headache whenever they give that to me." Peculiarly enough, the attending physician referred her to us with the specific recommendation of diathermy, without knowing the patient's intolerance to it.

Mode of Administration

In the great majority of patients referred for physical medicine and rehabilitation, patients feel the first time that actually something is done for them. Therefore, the environment must be pleasant, safe, and congenial. If, by necessity, unpleasant experiences cannot be avoided, they should be well explained to the patient. This statement is being made with reference to stretching and mobilization exercises. Many patients are referred to physical medicine who suffer from conditions in which pain is the predominant symptom, and the immediate danger is functional loss by keeping the joint in a favorable position. To illustrate my point, I am going to discuss those patients who suffer from rotator cuff syndrome of the shoulder, first described by Codman [4] and more recently by Moseley.[5] These are the patients whose condition had been labeled supraspinatus tendinitis, subdeltoid bursitis, capsulitis, and periarthritis. Years of latent, slowly burning inflammation may be lighted up with an acutely tender, excruciatingly painful shoulder.[6] The patient will be reluctant to move such a joint, which will inevitably result in secondary fixation. The foremost obligation to these patients is to maintain function. A variety of treatments have been advocated for the painful shoulder. Recommendations range from such extremes as to do nothing else but allow the patient simple rest, giving him sedation for pain,[7] to the excision of the acromion for supraspinatus syndrome.[8] In my experience, the best way of treating such patients is to relieve them from pain at any cost to ready them for range-of-motion exercise. During the acute phase, which usually lasts three to seven days, the patient should receive personal attention by the physician. Exercise must be strongly assisted or administered with the patient passively relaxed—never against force. It could be administered as a form of examination or recheck. Preferably, it should be done after the patient has received the most suitable pain-relieving measure, be that local injection of hydrocortisone with procaine, ultrasonic or infrared heat therapy, or short wave diathermy. I feel that x-ray and such toxic drugs as phenylbutazone should be reserved for very stubborn occasional cases, only as the last resort. If motion against gravity is not possible, Codman's test [9] will always succeed to attain 90 degrees or more abduction of the shoulder. A doctor should be available who has the time and clinical competence to spend with such patients, if frozen shoulders are to be prevented.

Dosage

To many people, professional or otherwise, dosage and prescription have no practical connotation in regard to the therapeutic application of physical agents. There is nothing farther from the truth then the idea that physical agents are always innocuous. It is especially true at this day and age because we use such energies as ultrasonics and microwave diathermy that give relatively little subjective feeling of heat yet heat deep tissues to a considerable degree with a potential danger of damage. The importance of dosage is relevant in regard to other energies used in physical medicine. We exercise a great many patients who are crippled from cardiovascular or respiratory disease and who would suffer from exercise and activity therapies if they were not given dosage according to cardiovascular tolerance and physical fitness.

Psychiatric Approach

The psychiatric aspect of treatment management is that all important, frequently intangible, often ill-understood, and neglected factor of everyday therapeutics which can help or defeat in the attainment of goals. From the first to the last meeting with the patient, the physician must be aware of his *de facto* relationship with him. He must know whether the patient has confidence in him, trusting his professional skill and sincerity. Is the therapist only tolerated by him? The patient's inner conflicts, motives, secondary gains, family relationship, and genuine reaction to his disability must be learned and kept in mind. Since the overwhelming majority of patients have chronic ailments, therapists must have a clear understanding of their goals. Neither undertreatment nor overtreatment can be done. This can be accomplished by precise timing and correlation of results with the attainment of a psychological peak and subjective gratification of the patient. When such a culmination of results is not appreciated, usually an anticlimax follows with precipitation of symptoms, grossly exaggerated by functional overlay. The following cases will illustrate some of these points.

Report of Cases

Case 1.—A 43-year-old woman was referred to me in January, 1957, for opinion and indicated treatment. Her complaint was pain in the lower part of her back since March, 1950, when the following incident took place. She worked as a chambermaid for a hotel; she was moving luggage from one place to another, and, allegedly, she developed such severe pain in her back that she fell on the floor. After about one-half hour, she felt better and cleaned up more rooms. She had to carry luggage again, and she lost consciousness. She was hospitalized for two weeks of rest and heat therapy. Allegedly, x-ray findings were negative. Subsequently, this patient received diathermy to her back three times a week for six years (until October, 1956). She had a thyroidectomy in September, 1951, one and one-half years after the alleged back strain, claiming that she began to be shaky and nervous after the accident.

Examination revealed a paucity of positive findings. She gave a long history while sitting in a chair without showing discomfort. She undressed, favoring her back as she did so. She alleged severe tenderness over the suboccipital, the posterior cervical, and lumbar regions. She moaned and groaned in anticipation of pressure. When she was asked to bend forward, she did so reaching only 20 in. from the floor with her knees extended, saying continuously, "I can't." Results of Faber, Ober, Eli, and straight leg raising were negative, but each maneuver caused her "terrific" pain accompanied by tearless cries. Neurological examination was negative. After the examination she asked her husband to fix her garter and to hand her her clothes, completely favoring her back.

My conclusion was that patient had conversion hysteria. She was a dependent individual, and more physical therapy would have further fixed her disability. Several days later, after consultation with the referring physician, I told her of this opinion. She reluctantly admitted that she had been seen by a psychiatrist, who offered her therapy, but she refused it. At this time she promised to follow through.

Comment.—This case indicates unjustified overtreatment, consisting of six years of diathermy, three times weekly. It helped her to become more dependent, fix her disability, and become virtually a useless cripple. This was a basically unstable individual, who, I believe, with competent guidance consisting of reassurance, motivation, and 6 to 10 physical treatments, could have been channeled back into useful existence.

Case 2.—A 36-year-old woman was referred to me with the diagnosis of torticollis on April 29, 1957, for opinion and indicated treatments. She complained of pain and stiffness in the posterior aspect of her neck, with radiation to her shoulders, of 12 days' duration. She related, also, that the referring physician treated her with oral medication and infiltrated her neck once, seven days prior to her referral. She had not worked since the onset of her pain.

The patient walked into the office holding her head rigidly tilted to the right and flexed; she had round shoulders, and she stooped. She appeared frightened and completely overwhelmed by her disability and also by her husband and mother, who insisted on accompanying her into the examining room. Examination revealed no tenderness. She had normal strength of the sternocleidomastoid muscles. She moved the cervical spine in all directions to almost full range; however, she required a great deal of encouragement to do so. Reflexes in the upper extremities were normal, and there was no sensory change to pin prick. Shoulder and upper extremities were also found normal as to strength and range.

My impression was that the patient had a dependency reaction, being overprotected by her mother and husband. She was without indicated medical guidance, and from a trivial wry neck she developed a conversion reaction. On the basis of this conclusion, I reassured her and gave her, immediately, Sayre sling cervical traction against 2.5 lb. of weight resistance. This was the least amount that gave her the feeling of tension to enable her to relax, permitting cervical rotation movements. This was accomplished without obvious discomfort, and the procedure was followed by ultrasonic, infrared, and massage therapy to relieve her from symptoms of disuse. She left the office as a changed person, cheerfully stating, "I feel much better." Subsequently, she received a total of five treatments under my direct personal supervision. After the third treatment she returned to her job as a cosmetic saleslady.

Comment.—By demonstration of personal interest in this patient, use of kind firmness accompanied by reassurance, indicating that there was nothing seriously wrong with her yet acknowledging that her symptoms were bad enough to cause her discomfort, and use of a few physical treatments, it was possible to prevent the development of conversion hysteria.

Summary and Conclusions

There are many factors that interplay in the attainment of therapeutic goals. Physical energies are often ill applied, and therapeutic results are unsatisfactory. As a result, wrong conclusions are drawn, and a valuable method of treatment is misused or wrongfully condemned. The physician is no longer able to fulfill all therapeutic needs of the patient. Nobody in clinical medicine can escape the need of ancillary services, and none of us can afford to sacrifice the modern clinical approach offered by physical medicine.

200 Court St.

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SCRAP IRON INTOXICATION

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"Scrap iron", an inexpensive alcoholic beverage, is so named because of its peculiar metallic taste. The chief ingredients are isopropyl alcohol and naphthalene. Fifty patients with scrap iron intoxication have been arbitrarily divided into five groups according to their predominant clinical picture. The largest group consisted of patients with acute brain syndrome as manifested by motor restlessness, hallucinations, illusions, extreme apprehension, tremor, and general disorientation. These symptoms, which are identical to those exhibited by a patient experiencing delirium tremens from ethyl alcohol, are usually reversible on abstinence from alcohol. There is a subsidence of most of the symptoms in the patients with toxic psychoses within several days, simply with supportive therapy consisting of use of fluids, vitamins, and sedation or tranquilizers.

From time immemorial man has used alcoholic beverages to deaden psychic and physical pain, to celebrate victories, and to escape from reality. When it has been impossible for men to secure the better alcoholic beverages, they seek, and find, substitutes. With the present price of legally obtainable alcoholic beverages at an all-time high, there is naturally a large market for cheap alcohol and substitutes.

The use of "scrap iron," or "scrap," as some of the users refer to it, was brought to our attention by a marked increase in the number of persons with toxic psychoses who were admitted to psychiatric hospitals. Bizarre physical and laboratory findings were obtained in the study of some of these confirmed scrap iron indulgers; this led to further studies of the patients who used scrap iron and to the toxic effects produced by this concoction.

Investigation into the production or source of scrap iron was not as rewarding as had been hoped. Isopropyl alcohol and naphthalene were identified in the blood specimen obtained from our first patient. Subsequent analysis of his half-full bottle of scrap iron showed isopropyl alcohol and naphthalene in strong concentration. We were greatly interested in determining the reason behind the addition of the naphthalene. The only scientific reason elicited for this addition was the statement of those patients consciously aware that its addition added some "kick to the drink." Obviously, this is a drink of "voltage rather than vintage." It was stated by some of the informants that this alcohol preparation was made in 50-gal. galvanized drums. The base materials are yeast, cracked corn or corn meal, and sugar. Quite often Clorox (a commercial

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preparation used for cleaning purposes) was used as a catalyst in the fermentation. The addition of the isopropyl alcohol (in the form of rubbing alcohol) is made after 48 hours have been allowed for the fermenting of the mash in the drum, at which time moth balls are also added to the mixture. The galvanized drums apparently give the preparation a metallic taste; hence, the origin of the term scrap iron.

Chemical Analysis

Qualitative Analysis.—The qualitative detection of isopropyl alcohol, naphthalene, and beta-naphthol in the urines of patients thought to be consumers of scrap iron was carried out in the chemistry department of the Medical College of South Carolina. The following methods were used.

Ten cubic centimeters of urine was distilled through a water-cooled condenser; the first 5 cc. of distillate was collected. A standard containing small amounts of isopropyl alcohol, naphthalene, and beta-naphthol was treated in the same manner as the sample. The isopropyl alcohol was detected by the method of Brown,[1] the vanillin-sulfuric acid reagent being prepared fresh before each testing period. The presence of naphthalene was detected by the method of Koelsch,[2] with the slight modification of substituting a dilute solution of bromine water for the chlorinated lime solution. This manipulation resulted in no false-negative reactions with the standard solutions and apparently stabilized the color development.

Confirmatory tests for the presence of naphthalene were carried out by the method of Penzoldt.[3] This depends on the formation of a characteristic green color when the naphthalene solution is underlayed with concentrated sulfuric acid. On all urine specimens showing positive reactions for naphthalene, the method of Pellerin[4] was used to demonstrate the presence of beta-naphthol. No quantitative analyses for naphthalene were attempted since detection of beta-naphthol in the urine would indicate ingestion, absorption, and metabolism of naphthalene.

In addition to detecting toxic products in the urine of the patients, we were able to analyze several dozen bottles of bootleg whiskey which had been confiscated by the police department during the several months during which we were carrying out our investigation. Eighty per cent of these bottles revealed the presence of isopropyl alcohol in large amounts, and 60% showed the presence of naphthalene in significant amounts.

Quantitative Analysis.—The chemical methods available to date do not permit the quantitation of a single alcohol in a mixture containing another alcohol or alcohols. In order to obtain analyses for the ethyl and isopropyl alcohol content of scrap iron, we utilized the method of gas chromatography. The Perkin-Elmer vapor fractometer, model 154, was used for these analyses. The column utilized for purposes of fractionation was Perkin-Elmer material F (tetramethylene glycol, dimethyl ether adsorbed on Celite). Sample size was 0.002 cc. Quantitation of the amounts of ethyl and isopropyl alcohols was obtained from standardization of the instrument against mixtures of these alcohols in water. Figure 1 illustrates a standard tracing; Figure 2 represents a tracing of a typical sample of scrap iron containing these alcohols.

Ten samples of scrap iron were subjected to gas chromatographic analysis for isopropyl and ethyl alcohol content. The isopropyl alcohol content was found to be 16.5, 14.6, 18.5, 16.7, 20.2, 15.0, 14.6, 17.5, 24.0, and 25.0% respectively. The ethyl alcohol content was found to be 36.5, 32.4, 46.7, 39.1, 23.0, 38.7, 33.9, 30.3, 32.2, and 34.4% respectively. The maximum error of the method was ±0.3%. All the samples were first analyzed qualitatively for the presence of isopropyl alcohol before being subjected to gas chromatography.

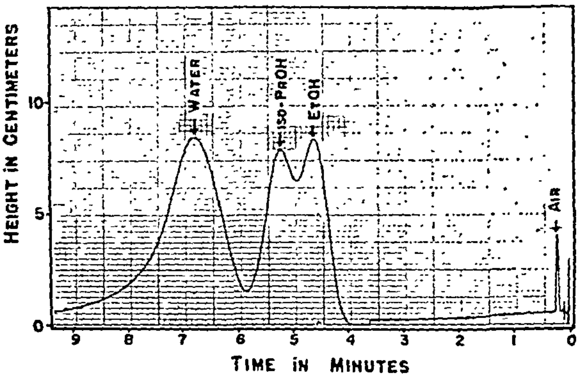

Fig. 1.—Standard tracing of the gas chromatograph of prepared mixture of ethyl alcohol (EtOH; 35%) and isopropyl alcohol (iso-PrOH; 25%) in water.

It may be suspected that the most frequently used utensils for the preparation of bootleg whiskey would be galvanized tubs, drums, tubing, etc., because of their relatively low cost and easy availability. During fermentation considerable amounts of acids are produced and may lead to the dissolving of zinc from the containers. Ten samples of scrap iron were subjected to a quantitative analysis for zinc content. For these analyses we modified and adapted the methods of Vallee and Gibson[5] and Hoch and Vallee.[6] The first method gave results of 3.64, 1.02, 1.16, 2.03, 5.14, 0.94, 4.21, 4.36, 1.54, and 2.76 mcg. per liter respectively. The second method gave results of 2.95, 1.22, 1.67, 2.12, 5.07, 1.21, 4.06, 4.09, 1.61, and 2.72 mcg. per liter respectively. The significance of these results is considered later.

Clinical Analysis of Fifty Patients with Scrap Iron Intoxication

The first 50 patients with scrap iron intoxication detected during a three-month period have been arbitrarily divided into five groups according to their predominant clinical picture. The largest group consisted of patients with acute brain syndrome as manifested by motor restlessness, hallucinations, illusions, extreme apprehension, tremor, and general disorientation. These symptoms, which are identical to those exhibited by a patient experiencing delirium tremens from ethyl alcohol, are usually reversible on abstinence from alcohol. There were 26 patients in this group, 15 of whom had complications. There was anemia due to iron deficiency in five, acetonuria (of five days' duration) in one, plastic rigidity in one, diarrhea (of 72 hours' duration) in one, latent syphilis in one, azotemia (with blood urea nitrogen level of 63 mg.%) in one, lobar pneumonia (not aspiration) in three, essential hypertension in one, and cellulitis in one. The average hospital stay was 8.6 days, and there were no deaths in this group.

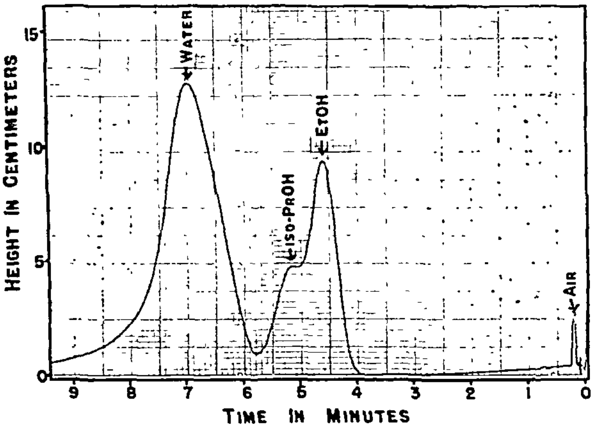

Fig. 2.—Tracing of the gas chromatograph of typical sample of "scrap iron" containing ethyl alcohol (EtOH; 38.7% calculated) and isopropyl alcohol (iso-PrOH; 15.0% calculated).

The second group consisted of five patients with a chronic brain syndrome, but there were irreversible mental changes. There were three patients with medical complications; of these, one had essential hypertension, one had anemia due to iron deficiency, and one had idiopathic epilepsy and anemia due to iron deficiency. Four patients had major psychiatric disturbances which required additional therapy. Two were schizophrenic, one catatonic, and the other paranoid; the third had a severe depressive reaction; the fourth had a case of concussion syndrome resulting from an automobile accident. Three of these four patients were discharged as improved. The catatonic schizophrenic patient died on the eighth hospital day after a pulmonary embolus. Permission for autopsy was refused.

Another group, the second largest, consisted of nine patients classified as having acute alcoholism. Though as a group their hospitalization period was short, their complications were the most severe. One patient fell prior to admission and dislocated the fourth cervical vertebra; this resulted in death on the fifth day in the hospital. Two patients were admitted in severe diabetic coma but recovered and were discharged as asymptomatic on insulin therapy. One patient had congestive heart failure secondary to a myocarditis, the etiology of which we were unable to determine; and, last, a patient in this group remained in the hospital 44 days to recover from an empyema secondary to a bronchopleural fistula.

In any group of alcoholics, gastritis and gastrointestinal disturbances are to be expected. We had two patients with severe gastritis with significant bleeding; one had a moderate hemorrhage and the other a massive hemorrhage. A third patient had a duodenal ulcer with massive hemorrhage. This patient's therapy was complicated by a platelet antigen-antibody reaction which resulted in further bleeding. Also, he had a five-day acute brain syndrome. All three patients were treated with a conservative medical regimen, and there were no deaths in this group.

Last, the most interesting group consisted of three patients admitted in hypoglycemic shock. They were admitted with blood sugar levels of 10 mg.%, 30 mg.%, and 33 mg.% respectively. After an acute episode of hypoglycemia, each of these patients was studied extensively for pancreatic and hepatic disturbances. Complete liver profile studies and cephalin flocculation, sulfobromophthalein retention, dye excretion, total and fractional protein level, prothrombin time, and glucose tolerance curve determinations were done. No abnormalities were found. Although we were familiar with the literature pertinent to hypoglycemia associated with bootleg whiskey, we did not suspect Solox (a shellac and paint solvent consisting primarily of ethyl alcohol and methanol) as the toxic agent, because the patients denied the ingestion of this fluid, and we were unable to detect methanol in either the blood or urine. However, one year later we were able to trace a similar case of hypoglycemia to Solox ingestion because of the telltale presence of methanol in the urine and blood of this individual. Undoubtedly these first three cases of hypoglycemia were likewise due to consumption of Solox. This emphasizes the point originally shown by Tucker and Porter[7] that the hypoglycemic effect of Solox is delayed. In our first three patients the metabolism of the methyl alcohol component of Solox was completed before the hypoglycemia occurred. This experience also illustrates the time-honored maxim that bootleg whiskey is often a mixture.

Toxicity

We were rather surprised at the scarcity of articles pertaining to case reports, toxicology, and symptoms of isopropyl and/or nephthalene poisoning in adults. The following symptoms and signs were compiled from several books on toxicology. Ingestion of isopropyl alcohol[8] results in dizziness, nervous and muscular disturbances, headache, marked fall in blood pressure, gastrointestinal hemorrhages, hypotension, shock, coma, uremia, and anemia. Ingestion of naphthalene[9] results in gastrointestinal irritation, diarrhea, liver and kidney damage, anemia, depression, convulsions, jaundice, and coma. No mention of the frequency of toxic psychosis was found in the articles that we reviewed, but in this series of 50 patients a significant majority exhibited definite symptoms of an acute or chronic brain syndrome out of proportion to the quantity of alcohol consumed.

More literature relevant to the toxic effects of naphthalene was found than articles reporting isopropyl alcohol toxicity. It is repeatedly emphasized in the literature that there is an individual susceptibility toward the toxic effects of naphthalene. Fifty years ago this product was frequently prescribed for the treatment of certain enteric fevers, namely typhoid, with only an occasional severe side-effect being recorded. The majority of the case reports relating to the toxic effect of naphthalene were concerned with the cumulative effect of naphthalene and the subsequent course of the patient who experienced a hemolytic anemia. Heretofore this has been reported primarily in children.

Smillie[10] reported four cases (three adults and one 10-year-old boy) of severe hemolytic anemia with the use of beta-naphthol for therapy of intestinal ancylostomiasis (hookworm) and concluded that it represented an individual susceptibility to the drug. In a report by McGregor,[11] we found references to three other cases of hemolytic anemia in adults, associated with the ingestion of moth balls. We had two such cases (to be reported in a later paper) not included in our first 50 cases. The hemolytic anemia was manifested by normochromic normocytic anemia with jaundice and elevated bilirubin and increased urobilinogen levels. Both patients reverted to normal on iron therapy and abstinence from scrap iron. Although we did not conclusively prove naphthalene, rather than isopropyl alcohol, as the toxin by challenge dosages of naphthalene, it is a fair assumption on the basis of these previous reports and the demonstration of beta-naphthol in their urine. The mechanism of this acquired hemolytic anemia is thought to be a congenital defect of glutathione in the red blood cells.[12]

Burning sensation in the urethra on urination was reported in the literature; however, this symptom was not obtained from any of our patients whose urine was positive for naphthalene. No gross or persistent microscopic hematuria which would suggest genitourinary pathology was noted in our series. Although the duration of the ingestion of scrap iron could not be determined in our patients, these latter two ascribed symptoms have been found mainly in people who have had prolonged contact with naphthalene. Likewise the known carcinogenic peculiarity of bladder cancer is known to exist only in workers in moth ball factories—we had no such cases.

McCord and associates,[13] in 1948, reported three cases of isopropyl alcohol intoxication and a review of the literature in regard to its toxic effects and reported: "Little is known about the effect of isopropyl upon the human individual other than some reports in the German literature in which small amounts of alcohol were taken experimentally by mouth." We did not notice the bradycardia or fall in blood pressure which has been reported, but rather an elevation of blood pressure and tachycardia. These two symptoms may be related to the delirium which many of the patients were experiencing at time of admission to the hospital. Animal experiments have shown that isopropyl alcohol is approximately twice as toxic in all respects as ethyl alcohol.[14] This was borne out in our case histories. Few patients were able to ingest more than one-half pint of scrap iron in six to eight hours and remain conscious. Only chronic alcoholics could drink as much as one pint and remain conscious. As reported by McCord and associates,[13] the blood level of isopropyl alcohol for drunkenness is 0.050 Gm.% and coma at 0.075 Gm.% in contrast to that of ethyl alcohol, which is more than twice these values.

We were able to find in the literature one case of isopropyl alcohol ingestion in an adult. The clinical picture was similar to that in our cases of acute brain syndrome, but the patient had the additional complications of lower nephron nephrosis which responded rather quickly to a conservative medical regimen. Our one case of azotemia (blood urea nitrogen level, 63 mg.%) was secondary to dehydration and responded quickly to hydration.

It was suggested that the metallic taste of scrap iron might represent the presence of zinc in a significant quantity; however, the amount found in representative samples of this fluid is comparable to the quantity present in the local drinking water. There were no symptoms which could be attributed to zinc toxicity alone. The metallic taste is probably caused by the strong concentration of alcohols and, perhaps, heavy metals in trace quantities.

Isopropyl alcohol is thought to be converted in the liver largely into acetone, which is excreted as such by the lungs and kidneys. This was borne out in only one patient, who had acetonuria for four days, of the 50 patients who were known to have drunk moderate amounts of isopropyl alcohol.

Naphthalene likewise is broken down in the liver into beta-naphthol, phenol, and muconic acid. All are excreted by the kidneys.

There is nothing of significant note in the treatment of our patients. There was a subsidence of most of the symptoms in the patients with toxic psychoses within several days simply with supportive therapy consisting of use of fluids, vitamins, and sedation or tranquilizers.

Summary

A new term, hitherto unknown to us, has become prevalent among imbibers of other than legally obtained alcoholic beverages. This term is "scrap iron" and is named thus because of the peculiar metallic taste. The chief ingredients are isopropyl alcohol and naphthalene. It is felt that the consumption of this preparation could become more in evidence because of the cheapness (isopropyl alcohol recently being sold in a large store for nine cents a pint) and because of its intoxicating effect. The frequency of severe physical and mental symptomatology was reviewed. It is anticipated that prolonged drinking of "scrap iron" will produce qualitative and quantitative effects similar to those of ethanol but of a more severe degree in a shorter period of time. As yet we have not observed the cumulative effects of scrap iron in a patient. Further investigation is warranted into the toxic effects, and steps should be taken to hinder the sale of these toxic substances.

16 Lucas St. (Dr. Gadsden).

Dr. Peyton C. Teague assisted in performing the quantitative analyses of scrap iron in this study.

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CLINICAL NOTES

ARTERIAL THROMBOSIS WITH GANGRENE AFTER USE OF PROMAZINE (SPARINE) HYDROCHLORIDE

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and
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This paper is a report of two cases of unusual and remarkably similar complications resulting from intravenous injection of promazine (Sparine) hydrochloride. Promazine, a phenothiazine derivative, is recommended in treatment of anxiety states, somatic disturbance, alcoholic syndromes, drug addiction, psychosis, manic depressive states, and schizophrenia.

Many side-reactions have been reported with its use, some mild and some severe. Untoward and catastrophic vascular complications in the two patients with alcoholism reported on here followed intravenous injection of this drug.

Lemere,[1] in 1950, warned that further observations are needed to establish the exact role of promazine therapy in intoxicated alcoholics. He reported that in one patient, after several intramuscular injections, promazine caused such a severe local reaction, with marked inflammation and induration at the site of injection, that its use had to be discontinued. He also reported three instances of convulsions after intramuscular administration of promazine in severely intoxicated patients. He felt at that time that these convulsions may have been either simply coincidental effects of withdrawal of alcohol or results of inadequately sustained tranquilization from two widely spaced subsequent doses of promazine. He also stated that other alcoholics refused to accept further intramuscular medication with promazine during the initial sobering up phases of their treatment because it made them worse.

In this report of two cases of vascular complication after intramuscular injection of promazine, it would seem more than coincidence that two cases so parallel in symptoms should follow each other within a few weeks. When the millions of intravenous injections of drug solutions that are given each year without mishap are considered, it is significant that two cases of arterial thrombosis after the use of the same drug can be reported from one community. For this reason, these experiences are related so that caution may be observed in the further use of promazine. In both cases, promazine was used for its tranquilizing effects after the heavy use of alcohol.

Report of Cases

CASE 1.—A 37-year-old woman was given 25 mg. of promazine in the left antecubital vein for tranquilization after the heavy use of alcohol. The patient was uncooperative and in a state of extreme agitation. After the needle had penetrated the vein and a small amount of promazine had been given, she jumped and then complained of severe pain in her hand and fingers. The needle was withdrawn, and her fingers and hand became cyanotic. She complained of intense pain at the site of injection. Immediately, procaine hydrochloride was injected into this site to alleviate the local pain. The pain, however, persisted, and stellate ganglion blocks were performed without relief of cyanosis or pain. Within a few days all the fingers of her left hand gradually became mumified, and dry gangrene ensued. This extended to the flexion crease of the wrist. No pulses were present at the elbow or the wrist. Four weeks later, on Dec. 19, 1956, an exploration of the antecubital fossa was done and the terminal portion of the brachial artery was found to be markedly constricted and of ropy consistency. It was totally occluded for a distance of 1½ in. There were no pulses through the cord-like structure, but, when the artery was opened, there was a slight flow of blood coming back through the radial and ulnar arteries. A polyethylene interval graft was inserted at the distal end of the viable brachial artery. This did not alter the clinical appearance of the hand. On Dec. 26, 1956, an amputation through the lower third of the forearm was performed. There was little bleeding, except for a weak flow through the dorsal interosseous artery. The wound healed subsequently without further complication. The patient continued to do well except for some pain in the arm stump; this pain ultimately subsided.

CASE 2.—A man, aged 28, was seen on Feb. 2, 1957, at the McCook Memorial Hospital. He had been given an intravenous injection of 25 mg. of promazine approximately 48 hours previously. The injection was given in the antecubital vein of his left forearm. On receiving the injection, the patient was said to have moved and to complain of pain in his hand. He later showed cyanosis of the distal phalanx of the ring finger and coolness of the whole ring finger. There was much pain on movement of his finger. The remaining portion of the hand appeared normal. There were also several irregular cyanotic blotches extending down the volar aspect of the forearm, distal to the site of injection. The areas measured from about 4.5 cm. in the upper aspect of the arm to 1.5 cm. in the lower arm. These areas were very tender. A radial pulse was present and in good force. A brachial plexus block and stellate ganglion block were done, and the cyanosis in the finger and the blotchy areas on the forearm returned to a normal color. Immediately after these procedures, the ulnar pulse became weakly palpable. Exploration of the antecubital fossa in the region of the injection was done and an area of thrombosis, 2 cm. long, in the left ulnar artery was found. No site of perforation of the artery could be found. No grossly abnormal findings could be noted in tissues at the site of injection. The artery was opened, but the clot seemed to be closely adherent to the arterial wall and could not be removed easily; thus, it was decided to excise the ulnar artery at the thrombosed portion of the artery. All other arteries seemed patent. A periarterial neurectomy of the distal brachial artery and its branches was done. After the operation, cyanosis in the distal phalanx and the blotchy areas on the forearm became more pronounced. The patient was treated with continuous stellate ganglion blocks for several days without any change. Heparin was also given. Pain continued in the distal phalanx, with progressive gangrene, and partial amputation of the finger was done on March 4, 1957. The blotchy areas on the forearm broke down but eventually healed. Several months later, a left dorsal sympathectomy was done at another hospital for pain and coldness in the hand. After the sympathectomy the pain and coldness in the hand was relieved.

Summary

It is felt that the etiology of the arterial spasm and thrombosis in two alcoholic patients treated with promazine (Sparine) hydrochloride might well be due to infiltration of the promazine into the soft tissues or reflexly through vein irritation after the intravenous injection. Extension to branches of the brachial artery causing gangrene in the hand, as reported in the first case, and gangrene in the left ring finger, in the second case, may have been by this mechanism. It is suggested that promazine be used intravenously with caution or perhaps not at all via this route.

179 Allyn St. (3) (Dr. Opinsky).

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SUBUNGUAL HEMORRHAGE IN PAN WASHERS

PRELIMINARY REPORT

Peter I. Long Jr., M.D., Dayton, Ohio

A great many articles[1] have been written concerning the effect of soaps and detergents on the hands, especially since the widespread introduction of detergent cleansing agents. To my knowledge little information has been obtained on the effects of detergents on the nails and nail beds. Viecelli[2] reported a case of onycholysis on exposure to alkalies in 1936. My attention was directed to this matter by the occurrence of three cases of nail-bed disease in pan washers on the dietetic service of the Veterans Administration Center. The cases reported here varied in intensity from a mild soreness of the nails to extensive subungual hemorrhage.

Report of Cases

Case 1.—A 61-year-old male presented with the complaint of very sore and tender nails. Examination revealed numerous small hemorrhages under all the nails of both hands (fig. 1). The lesions were noted primarily under the distal two-thirds of each nail. The skin of the hands was dry, and there was erythema over the joints. A complete physical examination was normal. There were no hemorrhagic lesions elsewhere on the body. The laboratory findings were as follows: The white blood cell count was 5,700 per cubic millimeter, with 70% polymorphonuclear leukocytes, 24% lymphocytes, 5% monocytes, and 1% eosinophils. The red blood cell count was 4,800,000 per cubic millimeter, and the hemoglobin level was 12.8 Gm. per 100 cc. The patient's bleeding time was 1¼ minutes; the platelet count was normal. The coagulation time was 15 minutes, the prothrombin time 63%, Coombs' test negative, and the serology negative. The patient's chest x-ray was normal.

The man's history revealed that he had been employed for three weeks as a pan washer. His nails became sore during the second week of employment. There was no previous history of sensitivity to soaps or detergents, nor was there any familial history of blood dyscrasia.

These hemorrhages progressed to a point that paracentesis of one nail was necessary to relieve the pressure symptoms. Over a period of two months the lesions became chronic in nature and the distal portion of the nails was separated from the nail beds. However, no nails were lost, and the patient's nails healed on his removal from the pan-washing job.

Case 2.—This 65-year-old male came to the first-aid room for treatment of a minor laceration of his hand. During treatment, he complained that the fingernail of the right fourth finger was sore. Examination revealed a subungual hemorrhage beneath this nail (fig. 2*A* and *B*). He could not remember any trauma to the nail. In approximately one month's time the man was seen again, and a chronic lesion involving one-third of the nail had developed: The distal portion of the nail was separated from the nail bed. The nail itself was dark and brittle. A complete physical examination was normal. The man's history noted that he had been working as a dishwasher for a year but had been transferred to the pan-washing room two weeks prior to the onset of his nail trouble. The laboratory findings were as follows: The patient's white blood cell count was 7,300 per cubic millimeter, with 72% polymorphonuclear leukocytes, 20% lymphocytes, 7% monocytes, and 1% eosinophils. His blood coagulation time was 11 minutes, and his platelet count was normal. Coombs' test was negative. Results of serologic studies were negative. His chest x-ray was normal.

Case 3.—A 21-year-old male reported sore fingernails two weeks after being hired as a pan washer. There were numerous small hemorrhages under the distal one-third of the nails, and the nails were extremely tender on pressure (fig. 2*C*). The physical examination was otherwise normal. The laboratory findings were as follows. The white blood cell count was 5,750 per cubic millimeter, with 55% neutrophils, 29% lymphocytes, 12% monocytes, 2% eosinophils, and 2% basophils. The hemoglobin level was 13.2 Gm. per 100 cc., hematocrit was 44.5 vol. %. The patient's bleeding time was 2½ minutes; his coagulation time was 10 minutes; and his platelet count was normal. Coombs' test direct and indirect, was negative; the results of serologic studies were negative. His chest x-ray was normal.

Comment

At this institution there are three separate pan-washing rooms located in various sections of the hospital. In each of the pan-washing rooms the same water supply, detergents, and steel wool are used. The same types of utensils are used everywhere. During the interval between the discovery of the first and third patient, the type of detergent cleansing agent was changed from a powdered detergent to a liquid detergent. However, the lesions developed while each of the detergents were in use.

All three cases of subungual hemorrhage developed in one pan room. The only difference in the pan-washing procedure that could be discovered was that our three patients all used heavy rubber gloves while working. All other pan washers either wore no gloves or only light cotton gloves to protect their hands from the steel wool.

We observed the washing techniques of the patients and found that during the course of the washing each patient accumulated 50 to 175 cc. of the washing solution in their gloves. The pH of the washing solution in the sinks was tested on a standard pH meter, and it varied from 7.1 to 10. The water temperature varied from 100 to 112 F. In the gloves, the pH of the washing solution

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From the Veterans Administration Center.

varied from 5.2 to 6.7. The glove solution temperature ranged from 100 to 104 F. Each patient was patch tested with each of the two detergent solutions and with rubber from the gloves without reaction.

The explanation of the mechanisms of these hemorrhages presents an interesting problem. Several factors stand out. First, the pan scrubbing is fairly traumatic, entailing a lot of hard scouring, and this would have a tendency to separate the nail from the nail bed, traumatizing the subungual tissue. Second, only the men who wore gloves developed this lesion although they demonstrated no sensitivity to rubber. Third, the pH of the washing solution trapped in the glove was more acid than that in the washing sinks. This may be accounted for by perspiration and the action of the keratin on the pH of the detergent solution as noted by Martin-Scott and Ramsay.[3]

It is interesting that only men who had been employed as pan washers for a short period of time developed these lesions. The fact that they were not accustomed to this type of labor may be an important factor.

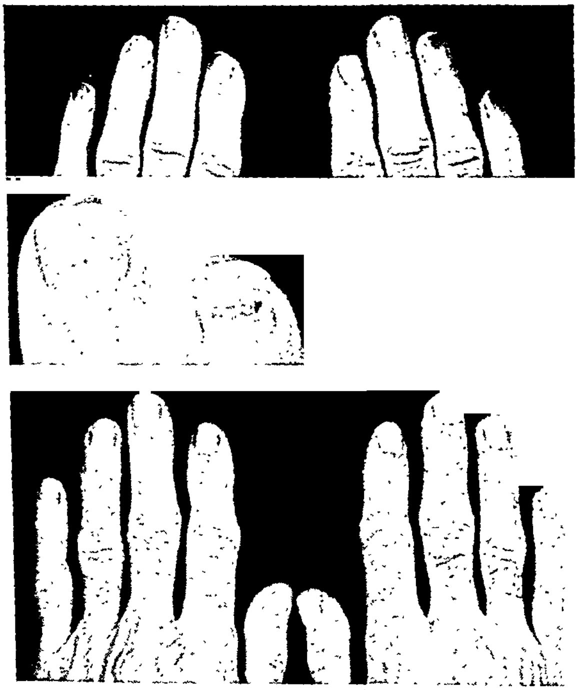

Fig. 1 (case 1).—*Top*, subungual hemmorrhage after three weeks' exposure to pan washing. *Middle*, maximum extent of disease. *Bottom*, four months after removal of patient from job as pan washer.

In determining the exact pathogenesis we must consider whether these lesions are purely traumatic or whether we are dealing with some toxic factor as well. Pure trauma seems unlikely since I feel the lesions would be more common if this were the circumstance. The change in the pH of the detergent solution trapped in the glove to the acid side may cause the breakdown of the detergent, with the subsequent release of a more irritating substance in the form of a sulfonic acid. This possibility is being investigated at the present time. Regardless of the exact pathogenesis, the subungual lesions I have described present a problem of medical and legal significance, since the cosmetic and functional impairment may be severe.

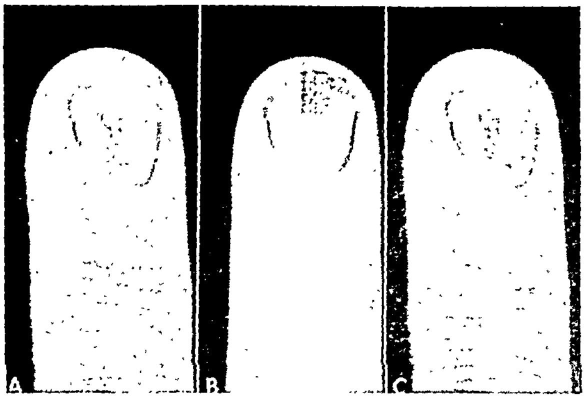

Fig. 2.—*A* (case 2), subungual hemorrhage limited to two nails of right hand. *B* (case 2), after three months' continued exposure to pan washing. *C* (case 3), small subungual hemorrhage after two weeks of pan washing.

Conclusions

Three patients had subungual hemorrhage. All of them were pan washers using detergents and rubber gloves in the washing process. The subungual hemorrhages subsided and the lesions completely cleared on removal of the patients from their jobs.

A change in the pH of the detergent solution trapped in the gloves and the trauma associated with scrubbing appeared to be the primary etiological factors. Further study is indicated to determine the exact pathogenesis. Prompt recognition of the lesions and elimination of the offending agent is necessary to prevent extensive nail bed damage.

4100 W. Third St.

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MAMMARY CARCINOMA

WHEN a patient presents herself with a mammary carcinoma that has obviously metastasized distantly, or when recurrence with metastases occurs after mastectomy, treatment varies somewhat depending on whether the patient is in the age group from premenopausal up to 5 years postmenopausal, or more than 10 years postmenopausal, with a borderline or transitional period of about 5 years between. In the former group oophorectomy is recommended by many, but since this is only effective in 30 to 40% of patients Slaughter[3] recommends irradiation of localized metastases, particularly those in weight-bearing bones, which he claims is effective in about 90% of such patients. In almost 50% of these patients the tumor is hormone-dependent[4] and in most of this group after ovarian ablation a remission averaging about nine months is observed. If there is no response to oophorectomy the patient probably will not respond to adrenalectomy, but in patients with hormone-dependent cancer adrenalectomy may result in a second remission of about the same average duration.

Because the results after oophorectomy and adrenalectomy are usually short-lived, attempts have been made to get the same results without operation,[9] but so far the achievement of "medical adrenalectomy" has not been realized. Subjective improvement after the giving of prednisone or prednisolone is often dramatic but rarely prolonged. The drugs are especially useful in getting patients in better condition for oophorectomy or adrenalectomy, and in treating patients with cerebral metastases, hypercalcemia, and lymphedema.[4] Objective evidence of improvement after this form of treatment has been observed in electroencephalograms in patients with cerebral metastases.[6] Kennedy[10] found that fluoxymesterone is as effective as testosterone and has the advantage that it can be given by mouth. If in the latter group there is no response, they switch to estrogens and in the frankly postmenopausal group they give estrogens routinely.

One other form of endocrine ablation, hypophysectomy, has been used as a last resort. This heroic procedure is most successful in patients with hormone-dependent tumors but it is definitely contraindicated in fragile old women worn out by long-continued x-ray and hormonal treatment. Other contraindications are a history of cardiovascular disease, multiple painful rib fractures, massive pulmonary metastases, respiratory paralysis due to cord lesions, and evidence of hepatic insufficiency or renal damage in some patients. Lawrence[11] describes a procedure whereby pituitary activity can be abolished by proton irradiation. Patients so treated had remissions lasting as long as 20 months. Illingsworth[12] states that the results from adrenalectomy and hypophysectomy are not significantly different. Adrenalectomy is technically a much simpler procedure. Proper selection of patients for either operation is still difficult. After any type of endocrine ablation relapses occur. This is interpreted to mean that aberrant endocrine cells not removed at operation have undergone a compensatory hypertrophy or that the cancer is composed of a mixture of cell types of varying hormonal dependence and that after suppression of the hormone-dependent cells the hormone-independent cells continued to grow. He concludes that endocrine treatment should be tried earlier in the course of the disease than has been the practice.

In discussing chemotherapeutic agents for mammary carcinoma Taylor[13] states that conclusions as to their value are fraught with uncertainty because of the variable natural course of the disease, variations in the selection and size of samples used by different observers, the difficulty of measuring regression of the disease objectively, and the difficulty of attributing regressions to the procedure being tested rather than to late effects of the previous treatment or other factors. He based this particularly on the inconclusive results of treatment with

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[1] Deleted on proof.
[2] Deleted on proof.
[3] Personal communication.
[4] Lipsett, M. B., and Pearson, O. H.: Endocrine Therapy of Metastatic Breast Cancer, Postgrad. Med. **21**: 571-576 (June) 1957.
[5] Deleted on proof.
[6] Personal Communication from I. Macdonald, M.D.
[7] Deleted on proof.
[8] Deleted on proof.
[9] Kofman, S., and others: Use of Prednisolone in Treatment of Disseminated Breast Carcinoma, Cancer, **11**: 226-232 (Jan.-Feb.) 1958.
[10] Kennedy, B. J.: Fluoxymesterone in Treatment of Advanced Breast Cancer, Cancer **10**: 813-818 (July-Aug.) 1957.
[11] Lawrence, J. H.: Proton Irradiation of Pituitary, Cancer **10**: 795-798 (July-Aug.) 1957.
[12] Illingsworth, C. F. W.: Adrenalectomy and Hypophysectomy in Breast Cancer: Endocrine Aspects of Breast Cancer, Edinburgh and London, E. & S. Livingstone, Ltd., 1958.
[13] Taylor, S. G. III: Breast Carcinoma and Triethylene-thiophosphoramide, Correspondence, J. A. M. A. **164**: 486-487 (May 25) 1957.
[14] Moore, G. E., and Pickren, J. W.: Response of Breast Cancer to Triethylene Thiophosphoramide: Pathological and Clinical Findings, A. M. A. Arch. Path. **65**: 98-103 (Jan.) 1958.

triethylenethiophosphoramide (Thio-TEPA). More recently Moore and Pickren[14] reported that a few months of palliation may be obtained by using triethylenethiophosphoramide. The chief importance of this observation is that it serves to keep up interest in chemotherapeutic research. It is hoped that a derivative or closely related preparation will be found that will surpass any chemotherapeutic agent used thus far.

The diagnosis of mammary carcinoma at an early stage still offers the best prognosis. Although in patients with this disease the die is largely cast by the tumor-host relationship which determines the number of patients curable by any form of treatment, the patient should be given the benefits of the best treatment available. As in few other forms of cancer, treatment must be individualized. A fixed plan of treatment is the refuge of the intellectually destitute.

DUMPING SYNDROME

One of the most unpleasant sequelae of gastric surgery is the complex physiological response to the presence of undigested food in the jejunum commonly called the dumping syndrome. It plays a role in postoperative weight loss and is a major factor in patients' dissatisfaction with the results of gastrectomy. Much confusion has arisen over the exact diagnostic criteria of this syndrome. Everson and co-workers[1] consider it a vasomotor phenomenon characterized by weakness, sweating, or dizziness. If any one of these symptoms occurs during or within one hour after eating, a positive diagnosis can be made. Although some authors speak of the nausea and vomiting that often accompany the syndrome these symptoms are an unreliable indication of true dumping syndrome.

According to Jordan[2] the incidence of the syndrome varies from 2 to 45% of patients who have undergone some type of subtotal gastrectomy. He attributes this discrepancy to the fact that those whose symptoms depend on the ingestion of certain foods may be erroneously diagnosed as having a food intolerance rather than dumping syndrome. Everson states that if only severe symptoms are considered the incidence is low and may even approach zero in some series. If on the other hand patients whose only symptoms are epigastric fulness and nausea are included an erroneous incidence approaching 100% may be reported. The fact that leading questions must be asked, because even patients with true dumping syndrome often do not complain of their symptoms, makes it hard to arrive at an accurate estimation of the incidence. Jordan believes that only about 15% have symptoms of sufficient severity to require treatment. No clear-cut increase in the incidence of dumping syndrome was found to be associated with an increase in the proportionate amount of stomach resected but the incidence did decrease with the elapsed time after operation. In other words many patients adjusted to their symptoms in time so that even though the symptoms did not disappear they became less troublesome.

Theories as to the underlying cause of dumping syndrome can be divided into mechanical and physiological.[3] According to the first, rapid emptying of the stomach causes symptoms by overdistending the jejunum. The weight of the distended jejunum causes traction on the stomach and this may be an added factor. Operative procedures with these factors in mind have been tried and good results have been reported by enthusiasts but the fact that dumping syndrome may be observed in the absence of these factors would indicate that they are at least not the sole cause. Suggested physiological factors that may cause dumping syndrome include hypoglycemia, sideropenia, altered digestion of fats, adrenal stimulation, fall in serum potassium level, and a drop in blood volume. No proof that any of these is the true cause has yet been produced. Webber and co-workers[3] found that in most patients with dumping syndrome there is a decrease in both blood volume and the potassium level but no correlation between this and the patient's symptoms was observed. Poth[4] states that dumping syndrome can be induced in anyone by introducing a large enough amount of hypertonic solution into a large enough portion of the small intestine and that the symptoms are not due primarily to distention but rather to depletion of extracellular fluids. Although the symptoms of dumping syndrome are almost identical with those of hypoglycemia the time relation to food taking is different. Hypoglycemic symptoms do not occur until two to four hours after eating.

The treatment of this condition was recently discussed in these pages by Jordan. Failure to control the symptoms by the use of a judicious diet, avoidance of fluids at meal times, rest after meals when convenient, and parasympatholytic drugs is rare. Although fluids should not be taken with the meals, as soon as symptoms occur the patient should drink 250 to 500 cc. of any fluid containing no sugar or electrolytes. Poth believes that gastrectomy should be combined with the construction of a gastric pouch (using a portion of the jejunum) of sufficient volume to act as a reservoir. His patients have not been followed long enough for the final outcome to be evaluated but the results judged by a short-term follow-up appear promising. In any case an increase in the knowledge of the pathogenesis of this condition should provide leads for further improvement in present methods of treatment.

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ORGANIZATION SECTION

PRELIMINARY GUIDE FOR MEASURING WORK ABSENCE DUE TO ILLNESS AND INJURY

The following Preliminary Guide for Measuring Work Absence due to Illness and Injury has been prepared by the Committee on Medical Care for Industrial Workers, a joint committee of the Council on Medical Service and the Council on Industrial Health, for those physicians who are concerned with this problem in their practice of medicine. Reprints of this article are available on request either to the Council on Medical Service or the Council on Industrial Health. It is the hope of the two councils that physicians who are dealing with various aspects of the problem of work absence will review this guide and submit any suggestions they may have for its future revision.

The subject of work absence among the employed population has occasioned considerable concern in medical, management, labor, and government circles and in various community organizations. Over the years, an appreciable body of literature has been developed in the United States dealing with medical, economic, and sociological aspects of this problem. Each such contribution, while helping to explain the nature of segments of the problem has, at the same time, led to some confusion through presenting differing definitions, measurements, and attitudes towards absence.

In an effort to delineate one of the most important areas of work absence, namely, absence due to illness—whether confirmed by the physician or not—and injury (hereinafter referred to as "sick absence"), the Committee on Medical Care for Industrial Workers, a joint committee of the Councils on Medical Service and Industrial Health of the American Medical Association, has drawn upon many resources to develop recommended guides for defining and measuring such morbidity absence. The use of uniform definitions and measurements in the maintenance of sick absence records will insure comparability of such records not only within a given industry from one period of time to another, but also between different industries. It is hoped that all health personnel engaged in the collection of such data and management will adopt the Committee's recommendations so that a clearer recognition of sick absence and a more accurate evaluation of its real impact upon industry and the employed population may result.

The Committee on Medical Care for Industrial Workers recognizes that established company practices may, in some instances, present an obstacle to the adoption of these preliminary guides. It is convinced, however, that uniform information such as that called for in this guide, and in forms based thereon, can be secured as well as such additional information as individual companies feel is necessary. Future experience will determine the extent to which this guide should be modified, and how the information gathered over a period of time among many industries can best be compared and put to practical use.

Identifying and Measuring Work Absence

Definition.—An employee absent from work should be considered to be on "sick absence" when the reason for absence is his or her own illness or injury. The total duration of such an absence is to be considered as "sick absence" and recorded accordingly. The practice is to be discouraged of giving to an absence, which by this definition is sick absence, some such label as "annual leave," "administrative leave," or "leave without pay," after the absence has exceeded a specified number of days, in order thereby to avoid the recording of this as a sick absence. Maternity leave should not be classified as sick absence, except when complications increase the normal maternity leave.

Classification.—The definition recommended is based upon a distinction between absences due to, and those not due to, illness or injury. Sick absence, i. e., that due to illness or injury, is further classified as non-occupational or occupational in origin. An occupational sick absence is one that arises out of and in the course of employment.

Classification Divisions.—Classification divisions are (*a*) nonoccupational illness, (*b*) nonoccupational injury, (*c*) occupational illness, and (*d*) occupational injury.

Basic Measures of Sick Absence.—Severity rate, frequency rate, and disability rate (all defined below) are the three measures which have been selected to promote uniformity in the collection, recording, and interpretation of sick absence statistics. Although other measures are in use and utilized for different purposes and reasons by various companies, the use of these three measures is recommended as standard practice. The Committee further recommends, for denoting duration of absence, the use of calendar days rather than "scheduled days" or work days," since calendar days in industrial usage is nearer the correct duration of disability from an illness or injury. This is in line with the practice used in connection with sickness disability benefit payments, and in sickness surveys conducted among the general population.

Severity Rate: Severity rate is defined as the number of calendar days lost per absence. The formula is as follows:

$$\frac{\text{No. of calendar days of absence due to nonoccupational illness (or injury)}}{\text{No. of absences due to nonoccupational illness (or injury)}}$$

Frequency Rate: Frequency rate is defined as the number of absences per 1,000 employees per unit of time (month or year). The formula is as follows:

$$\frac{\text{No. of absences due to nonoccupational illness (or injury) per month or year}}{\text{Av. no. of employees on payroll}}$$

It is recommended that "average number of employees" be arrived at by taking an average of the totals of employees on the first and final pay days of the month.

Disability Rate: Disability rate is defined as the number of calendar days lost per employee per unit of time (month or year). The formula is as follows:

$$\frac{\text{No. of calendar days of absence due to nonoccupational illness (or injury) per month or year}}{\text{Av. no. of employees on payroll}}$$

$$\text{Disability Rate} = \frac{\text{Frequency Rate} \times \text{Severity Rate}}{1{,}000}$$

Note: Another method to compute frequency and severity rates for occupational injuries is that recommended by the National Safety Council. The Frequency Rate is the number of disabling work injuries per million employee-hours of exposure. The Severity Rate is the total days charged for work injuries per million employee-hours of exposure.

Diagnosis and Diagnosis Groupings.—It is recognized that one of the basic problems in collecting information will be the classification of illness and injury. The American Medical Association has played an important role over the past 25 years in developing and revising "The Standard Nomenclature of Diseases and Operations," and in recommending that it be used as the basic reference source for proper terminology of clinical diagnoses. The Standard Nomenclature is a classification of accepted terminology in use by the majority of hospitals in the United States for diseases and operation index filing. It is presently undergoing a major revision so that it can be used as a clinical-statistical classification when completed. The Committee is therefore not recommending the establishment of, or adherence to, any specific groupings at this time but plans to recommend the use of Standard Nomenclature categories when the revision is completed and made available to all physicians.

Records.—An infinite variety of forms could be devised and made to serve to record the essential information. These range from spread-sheet to punch card systems. Since another committee of the American Medical Association has the responsibility for developing suggested record-keeping forms, the Committee on Medical Care for Industrial Workers is merely noting at this time the various types of data which should be called for in such forms. Physicians and others responsible for the compilation and analysis of morbidity data are invited to submit the results of their analyses, together with copies of forms developed, to the Committee for possible future publication.

The items in the table are among those suggested for inclusion in sick absence records in individual and/or consolidated (group) records and reports. They do not preclude the addition of other items considered necessary by individual physicians or companies for other types of analyses.

Some Items Suggested for Inclusion in Sick Absence Records

- Name or identifying number
- Sex
- Marital status
- Department
- Occupation (see text, Appendix A, for definitions
  - Salaried
    - Managerial and supervisory
    - Clerical and sales
  - Production (hourly)
    - Semi-skilled and unskilled
    - Skilled
- Length of service with company (yr.)
  - Less than 1
  - 1- 4
  - 5- 9
  - 10-14
  - 15-19
  - 20-24
  - 25 and over
- Date of beginning of absence
- Date of return to work or other termination
- Duration of absence in calendar days
- Date of birth
- Age group (yr.)
  - Under 25
  - 25-34
  - 35-44
  - 45-54
  - 55-64
  - 65 and over
- Diagnosis
  - (Standard Nomenclature, 5th Edition—in preparation)
- Classification
  - Nonoccupational illness
  - Nonoccupational injury
  - Occupational illness
  - Occupational injury
- Number of days of paid sick leave allowed
- Calendar days of absence (days)
  - 1
  - 2
  - 3
  - 4- 7
  - 8- 14
  - 15- 28
  - 29- 49
  - 50- 91
  - 92-182
  - 183 and over
- Reason for termination
  - Returned to work
  - Discharged
  - Resigned
  - Retired
  - Deceased

Some Rules to Be Observed.—(*a*) The same person may be involved in more than one absence in the course of a month or a year. Therefore, it is important to record not only the total number of absences but also the actual number of people involved. (*b*) Where more than one diagnosis is involved in an absence, the absence and all calendar days lost should be attributed to the diagnosis associated with the condition causing the greatest loss of days. (*c*) Each absence caused by an acute illness or an acute episode in the course of a chronic illness is to be considered as a separate absence. However, a person who returns to work before he has fully recovered from an acute illness or an acute episode in the course of a chronic illness and who consequently has to be absent again, should be considered as having had one continuous absence instead of two absences. The determination as to whether recovery from an acute illness, or an acute episode in the course of a chronic illness is incomplete, is one to be made according to individual company practice and medical judgment. (*d*) To facilitate record keeping and to avoid counting as two or more absences an absence which begins in one reporting period and continues into and through a subsequent reporting period(s), the arbitrary rule will be that such an absence will be charged against the reporting period in which it ends. Many organizations may find it difficult or undesirable to adhere to this rule, especially if they have been accustomed to computing absence data at the end of each calendar year. The reports of companies which wish to continue this practice should clearly indicate this fact, so that the basis for data compiled will be understood. (*e*) Where, upon operation of the rule stated in the first sentence of *d*., prolonged absence(s) would tend to exaggerate unduly the rate for any reporting period, the circumstances should be explained in a footnote.

Records containing the foregoing items and condition of recording information will be able to provide uniform data for the (1) three basic measures of absence, and, (2) various relationships involving age, occupation, sex, length of employment, and other factors considered of interest and importance.

Appendix A

Definitions of Occupations. Definitions of occupations (see table) are as follows:

Managerial and Supervisory: Managerial and supervisory classification includes officers of company, department managers, supervisors, and foremen. This category also includes technical and professional staff personnel such as accountants, auditors, editors, engineers, lawyers, physicians, nurses, and statisticians. These occupations include all those responsible for policy-making, planning, advising, coordinating, or guiding the work of others.

Clerical and Sales: Clerical and sales classification includes all nonsupervisory office personnel and those performing clerical duties such as shipping and receiving clerks, and stock clerks. This category also includes sales personnel such as canvassers, solicitors, demonstrators, and shoppers.

Skilled: Skilled classification includes craft and manual operations requiring a thorough and comprehensive knowledge of the processes involved in the work, the exercise of considerable independent judgment, a high degree of manual dexterity and, often, responsibility for valuable equipment and product. This group of workers becomes qualified by serving apprenticeships or extensive training periods.

Semi-skilled and Unskilled: Semi-skilled and unskilled classification includes all other production or hourly paid workers or service personnel not included in the previous classifications.

MEDICAL SCHOOL AND PRACTICE LIAISON

The A. M. A. Board of Trustees has endorsed the creation of a four-way liaison committee to bring about closer relationships between medical education and the practice of medicine. The group will be comprised of two members of the Board of Trustees, two presidents of universities having medical schools, two representatives of the Council on Medical Education and Hospitals, two designates of the Association of American Medical Colleges, and respective staff members.

Names of committee members were not immediately announced, pending final decision on selection by all groups concerned. Unlike the special committee formed early this year to mediate differences between some medical educators and some medical practitioners in Georgia (see editorial, "Concord Out of Conflict," The Journal, Aug. 30, 1958, page 2206) the new committee is not designed to help solve an existing local problem but, rather, to function on a long-range basis—building rapport and nipping incipient problems before they arise.

NEW EDITION OF AMERICAN MEDICAL DIRECTORY AVAILABLE

The new 20th edition of the American Medical Directory, which gives brief professional data about 250,621 physicians in the United States and Canada, is now available. The directory lists for each physician his age, address, date of licensure, specialty, and membership in special medical societies.

This edition contains 18,398 new names of physicians that did not appear in the last previous edition (1956) of the directory and also the names of 1,214 physicians whose addresses are unknown. The states with the biggest gains include California, 1,467; Florida, 476; Michigan, 395; Ohio, 324; Washington, 136; Oregon, 84; Arizona, 70. Among those in the loss column are Minnesota, 50; Iowa, 33; Missouri, 31.

Single copies of the directory sent anywhere in the United States or its possessions cost $35, and to other countries the cost is $38. Orders may be sent to these headquarters.

JOINT CONFERENCE COMMITTEES

Noting that joint and separate responsibilities which doctors and hospitals have in providing medical care and hospital services "cannot be discharged effectively without proper liaison," The A. M. A. Board of Trustees and the American Hospital Association's Board of Trustees have endorsed a recommendation that every hospital set up a Joint Conference Committee made up of representatives from its medical staff and its administrative staff. The recommendation first was made last February in a statement by the A. M. A. Council on Medical Education and Hospitals. Such committees are necessary, according to a preamble of the statement, because "they will bring to bear on major decisions which must be made in the hospital a full measure of broad experience, intelligence and responsibility. . . . There should be a common ground where these two groups can meet in order that there may be a mutual understanding of each other's activities and problems as the art and science of medicine become more complex and more comprehensive."

World Medical Association at Copenhagen

Scenes from 12th Assembly, Aug. 15-29, 1958

A, W.M.A. officials applaud address of welcome to Copenhagen. *Left to right* are Secretary General Louis H. Bauer, retiring President Ahmet Rasin Onat of Turkey, Council Chairman L. G. Tornal of Spain, and W.M.A. Journal Associate Editor S. S. B. Gilder of Canada. *B,* A. Lawrence Abel *(left),* who presented medical film on "Hemorrhoids and the Early Detection of Rectal Cancer," is congratulated by Denmark's Prime Minister Hans Christian Hansen. Dr. John Henderson *(center),* Medical Director of Johnson & Johnson, delivered keynote address. *C,* Dr. Louis H. Bauer *(left),* Secretary General of the W.M.A., and Dr. Gunnar Gundersen *(second from left),* President of the A.M.A., congratulate Dr. Charles Jacobsen *(far right)* on his election as President of W.M.A. Looking on is Hans Christian Hansen. *D,* Dr. Malcolm R. Hill, of Los Angeles, presents his film, "Anorectal and Sigmoidoscopic Examination with Differential Diagnosis." *E, Left to right* are A.M.A. President-elect Louis M. Orr, who delivered scientific paper on "The Biological Effects of Nuclear Radiation"; A.M.A. President Gunnar Gundersen; and A.M.A. Executive Vice-president F. J. L. Blasingame. *F,* Two Japanese physicians congratulate A.M.A.'s Mr. Ralph P. Creer on International Medical Film Exhibit. At *left* is Dr. Tomio Ogata of Tokyo, Vice-president of the General Assembly of Japanese Medical Congress. At *center* is Hiroshi Ishii of Tokyo, Supervisor of the Japanese Medical Association.

COMMITTEE ON INFLUENZA

In the fall of 1957 the A. M. A. Special Committee on Influenza cooperated with state medical societies, the U. S. Public Health Service, and other medical and health groups in the initiation and operation of mass immunization programs designed to combat the spread of Asian influenza. While there is no present threat of another Asian influenza epidemic, there is a continuing necessity for the immunization of certain groups and individuals. Therefore, the Committee believes that the following recent announcement by the U. S. Public Health Service is of interest to all physicians.

FRANK W. BARTON, *Secretary.*

INFLUENZA VACCINATION

The Public Health Service has recommended consideration of influenza vaccination among groups wishing to guard against absenteeism in their professions or occupations, and among those to whom the disease might be an added health risk. The Service pointed out that there are now ample supplies of influenza vaccine of the polyvalent type, containing immunizing material against the important strains of influenza, including the Asian strain, and that vaccination should be planned before the fall season begins. Dr. Leroy E. Burney, surgeon general of the Public Health Service, said that while there is no indication at present that widespread attacks of influenza will occur this fall and winter there undoubtedly will be some influenza and that vaccination is a prudent measure for certain groups and individuals.

Dr. Burney stressed that practicing physicians should be the judges of whether or not to vaccinate individuals. He said groups which should be considered for vaccination include hospital staffs whose services are necessary to the care of the sick; groups living in close proximity where influenza could spread rapidly, such as institutions; industrial or service groups, big or small, in occupations where the sudden absence of a sizable part of the force would create serious disruption of the work; and individual patients or groups who have a special risk, such as the aged, the chronically ill, and pregnant women. This special risk group, Dr. Burney said, should be the special area of consideration for the private physician.

COUNCIL ON MEDICAL SERVICE

UNION HEALTH CENTERS, 1958 SURVEY

The Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health has recently completed a third survey of union health centers. A forthcoming publication will contain descriptions of 29 such centers together with data on various aspects of their operations. (A previous announcement in THE JOURNAL gave the figure as 28. An additional plan has since been surveyed.) The 29 centers represent more than half of the 50 union health centers in operation which have an enrollment of approximately 950,000 union members and, in some instances, dependents.

Union health centers have emerged as a major development in the provision of medical care to members of unions only within the past 15 years. The earliest center was that of the International Ladies' Garment Workers' Union in New York City, which was organized in 1913. It was not until World War II, when the government's anti-inflation "hold-the-line" order virtually halted wage increases, that health and welfare plans became matters of prime importance in labor-management negotiations and collective bargaining. Medical services provided through these health centers range from diagnostic only to comprehensive medi-

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Members of the Committee on Medical Care for Industrial Workers are Drs. Frank J. Holroyd, Chairman, Princeton, W. Va.; T. J. Danaher, Torrington, Conn.; Edwin P. Jordan, Charlottesville, Va.; Melvin N. Newquist, New York; Leo Price, New York; William A. Sawyer, Rochester, N. Y.; Frederick W. Slobe, Chicago; Clyde C. Sparks, Ashland, Ky.; Donald A. Dukelow, Consultant; Mr. Edwin J. Holman, Consultant; Dr. B. Dixon Holland, Secretary, Council on Industrial Health; Mr. George W. Cooley, Secretary, Council on Medical Service; and Mr. Murray Klutch, Research Associate, Chicago.

cal care, although "comprehensive" features vary according to the specific plan. Most health centers, however, provide diagnostic and ambulatory medical care through closed panels. Physicians are, for the most part, employed on an hourly or session basis, although a small number receive a salary or retainer for their services. In a few instances, physicians in private group practice contract to render the specific services negotiated through the contract between the union and the employer.

TABLE 1.—*Date of Origin, Membership, and Scope of Medical Programs of Twenty-nine Union Health Centers, 1958 Survey, Committee on Medical Care for Industrial Workers*[*]

Plan	Date Begun	Total Eligible	Total Members	Dependents Covered	No. of Locals Concerned	No. of Firms Concerned	Scope of Program
Amalgamated Clothing Workers of America[†]							
Chicago	1955	10,000	9,500	Spouses, retired members	N.A.[§]	Over 100	Diagnostic, ambulatory medical care
New York and New Jersey (Mobile Unit)	1957	3,000	3,000	None	1	57	Diagnostic only
New York	1951	33,356	33,356	Spouses	26	N.A.	Diagnostic, ambulatory medical care
Philadelphia	1951	23,000	23,000	Spouses	N.A.	Several hundred (tabulated as 300)	Diagnostic, ambulatory medical care
International Ladies' Garment Workers' Union							
Allentown, Pa.	1948	12,000[‡]	12,000	None	5	220	Diagnostic only
Boston	1949	15,000	15,000	None	52	N.A.	Diagnostic, ambulatory medical care
Chicago	1955	7,000	7,000	None	10	250	Diagnostic, ambulatory medical care
Cleveland	1952	5,000	5,000	None	13	N.A.	Diagnostic only
Harrisburg, Pa. (Mobile Unit)	1951	N.A.	N.A.	None	N.A.	75	Diagnostic only
Kansas City, Mo.	1950	2,562	2,562	None	9	40	Diagnostic, ambulatory medical care
Los Angeles	1951	9,441	9,441	None	14	230	Diagnostic, ambulatory medical care
Minneapolis	1950	800[‡]	800	None	5	18	Diagnostic, ambulatory medical care
Newark, N. J.	1951	30,000	30,000	None	34	617	Diagnostic only
New York	1913	155,000	155,000	Spouses, retired members, children under 18	32	N.A.	Diagnostic, ambulatory medical care
Philadelphia	1944	21,071	21,071	None	N.A.	N.A.	Diagnostic, ambulatory medical care
Springfield, Mass. (Mobile Unit)	1947	2,400	2,400	None	N.A.	17	Diagnostic only
Wilkes-Barre, Pa.	1948	21,566	21,566	None	5	256	Diagnostic only
Amalgamated Laundry Workers, New York	1954	18,000	16,000	Spouses and retired members, children for special programs	13	1,400	Diagnostic, ambulatory medical care
Amalgamated Lithographers of America, New York	1953	7,500	7,500	None	1	300	Diagnostic, ambulatory eye care
American Federation of Labor Medical Service Plan, Philadelphia	1951	52,000	32,000	Families of members	28	300	Diagnostic, ambulatory medical care
Building Service Employees (Local 32B) International Union, New York	1957	36,000	36,000	None	1	N.A.	Diagnostic, ambulatory medical care
Medical Department: Pension Committee of the Joint Industry Board of the Electrical Industry, New York	1953	7,000	7,000	None	1	N.A.	Diagnostic only
New York Hotel Trades Council and Hotel Association of New York City	1956	34,000	34,000	None (Retired members)	20	279	Diagnostic, ambulatory and in-hospital medical care
New York Shipping Association—International Longshoremen's Association (Ind.), Brooklyn	1957	40,000	12,000	None	N.A.	N.A.	Diagnostic only
Union Eye Care Center, Chicago	1951	92,734	92,734	Families (about 5%)	106	N.A.	Diagnostic, ambulatory eye care
Union Health Service, Inc., Chicago	1955	10,424	10,424		7	400	Comprehensive medical care
United Wire, Metal and Machine Medical Center, New York	1955	10,000	4,000	Spouses and children under 18	2	200	Diagnostic, ambulatory medical care
Warehouse and Distribution Workers Union, Local 688, Labor Health Institute, St. Louis	1945	15,849	6,361	Families	1	200	Comprehensive medical care
Willys Unit, Local 12, UAW, Toledo	1955	155,463	155,463	Spouses and children	103	N.A.	Diagnostic only
Totals		830,166 (28 plans)	766,178 (28 plans)		489 (23 plans)	5,259 (19 plans)	10 Diagnostic only 17 Diagnostic, ambulatory medical care 2 Comprehensive

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[*] Data as of Dec. 31, 1957, unless otherwise indicated. Plans arranged, for most part, according to union sponsorship; exact names of union health centers will be found in section of forthcoming publication describing each plan.

[†] Health centers are named Sidney Hillman.

[‡] 1952.

[§] N.A. = not available.

Table 1 is a listing of the 29 union health centers surveyed showing their dates of origin, eligible and actual membership, whether dependents and retired members are covered, the number of union locals involved in each program, and the scope of the medical program offered.

As previously indicated, the ILGWU Union Health Center in New York City is the oldest one in existence, having been organized in 1913. This union, incidentally, has the largest number of health centers throughout the United States. Of the remaining 28, 6 were begun prior to 1950, and the majority since then. The enrollment in 28 of the plans for which such information was available was over 765,000. This represents 80% of the estimated enrollment in all union health centers as of the end of 1957. Eleven plans, with an enrollment of approximately 530,000, included one or more dependents. Three of the 11 which covered dependents also included retired members; one other plan which did not include dependents also covered retired members. Of the 29 health center programs, 23 for which information was available were participated in by 489 local unions. In most cases, these locals are part of the union. In a few instances, such as the American Federation of Labor Medical Service Plan, the St. Louis Labor Health Institute and Willys Unit, Local 12, other unions may also affiliate with the plan. These are generally called multiunion programs. One of the characteristics of these union health centers is that their members usually, but not always, work in relatively small establishments or units which are widely separated and have little or no in-plant medical services or occupational health program. Over 5,200 firms were involved in the collectively bargained agreements supporting these centers of the 19 programs for which such information was made available. As previously indicated, most health centers provide diagnostic and ambulatory medical care. Of the 29 union health centers surveyed, 17 offer these medical services, 10 provide diagnostic programs only, and 2 offer a more or less comprehensive program.

TABLE 2.—*Personnel and Payment to Physicians in Twenty-nine Union Health Centers, 1958 Survey, Committee on Medical Care for Industrial Workers*

Plan	Administrative	Physicians	Nurses	Ancillary	Payment to Physicians (Exclusive of Medical Director)*
Amalgamated Clothing Workers of America					
Chicago	9	30	4	10	$9 per hr., 1st yr.; $9.50 per hr., 2d yr.; $[illegible] per hr., 3d yr.
New York and New Jersey (Mobile Unit)	4	3	1	4	Retainer
New York	22	77	7	15	$5.75 for general practitioners; $7.75 for specialists
Philadelphia	37	44	5	14	$7.00 per hr., 1st yr.; $8.50, 2d yr.; $10, thereafter
International Ladies' Garment Workers' Union					
Allentown, Pa.	6	24	2	2	$7 per hr.
Boston	6	35	3	4	$7 per hr.
Chicago	2	26	4	6	$8.50 per hr.
Cleveland	3	34	1	2	$20 per 2-hr. session
Harrisburg, Pa. (Mobile Unit)	2	31	4	4	$15 per 2½-hr. session
Kansas City, Mo.	1	31	4	3	$10 per hr., 1st 5 years; $11 thereafter
Los Angeles	9	39	5	6	$12 per hr.
Minneapolis	37	44	5	13	$7 per hr., 1st yr.; $8.50 per hr. 2d yr.; $10, thereafter
Newark, N. J.	2	23	5	9	$15 per 2-hr. session
New York	142	175	42	40	Salary and hourly‡
Philadelphia	16	32	4	9	$7 per hr., 1st yr.; $8 per hr., 2d yr.
Springfield, Mass. (Mobile Unit)	...	1	...	1	Not stated
Wilkes-Barre, Pa.	1	35	4	4	$8 per hr.
Amalgamated Laundry Workers, New York	17	45	3	9	$7.75 per hr.
Amalgamated Lithographers of America, New York	1	7	1	3	$9—9.50 for ophthalmologists; $8.25 for others
American Federation of Labor Medical Service Plan, Philadelphia	N.S.†	62	10	7	$7 per hr.
Building Service Employees (Local 32B) International Union, New York	9	27	3	4	$8 per hr.
Medical Department: Pension Committee of the Joint Industry Board of the Electrical Industry, New York	4	N.S.	1	5	Not stated
New York Hotel Trades Council and Hotel Association of New York City	35	170	15	13	$7.50 per hr., general practitioners; $10 per hr., specialists
New York Shipping Association—International Longshoremen's Association (Ind.), Brooklyn	2	36	7	25	$9 per hr., generalists; $12 per hr., specialists
Union Eye Care Center, Chicago	6	6	...	5	$10 per hr.
Union Health Service, Inc., Chicago	11	22	4	5	Time proportion basis; based on annual salaries of $15,000-$20,000 per yr.
United Wire, Metal and Machine Medical Center, New York	1	19	2	1	$25 per 3-hr. session, general practitioners; $10 per hr., specialists
Warehouse and Distribution Workers Union, Local 688, Labor Health Institute, St. Louis	1	56	12	14	Hourly rate based on Dept. of Commerce income statistics for indicated specialties
Willys Unit, Local 12, UAW, Toledo	14	6	3	5	Salary
Totals	400 (28 plans)	1,140 (28 plans)	161	242	

* Virtually all medical directors are on salary for their part-time or full-time employment.
† N.S. = not stated.
‡ $5.50-$10 per hr. Greatest number receive $6.50 per hr. Salaries of chiefs of services range from $3,000 to $8,000 per yr.

Table 2 is a breakdown of the personnel employed by the union health centers surveyed. Over 1,100 physicians are employed on a part-time basis (hourly or per session), and generally work at the center two or three days a week for periods of two or three hours. In some instances, these private practitioners work as many as 20 hours a week. Hourly rates for general practitioners range from $5.75 to $10 per hour; those for specialists range from $7 to $12 per hour. The 29 plans employ 161 nurses of various qualifications, and 242 auxiliary and ancillary personnel, including laboratory and x-ray technicians, social workers, and medical librarians.

Table 3.—*Number of Persons in Plan and Number Utilizing Union Health Centers, 1958 Survey, Committee on Medical Care for Industrial Workers**

Plan	No. of Persons in Plan	No. Utilizing Services	% of Persons Utilizing Services Over 1-Yr. Period†
Amalgamated Clothing Workers of America			
Chicago	9,500	4,400 (Sept. 12, 1955, to March 1, 1958)	18.8
New York and New Jersey (Mobile Unit)	3,000	700 (5 mo. of 1957)	56.0
New York	33,356	30,000 (1951 to Dec. 31, 1957)	12.8
Philadelphia	23,000	7,500	32.6
International Ladies' Garment Workers' Union			
Allentown, Pa.	12,000	4,971 (April 1, 1951, to April 1, 1952)	41.4
Boston	15,000	3,176	21.2
Chicago	7,000	2,350	33.6
Cleveland	5,000	2,214 (Feb. 26, 1952, to Dec. 31, 1957)	7.6
Harrisburg, Pa. (Mobile Unit)	Not stated	9,601 (Oct., 1946, to Oct., 1951)	....
Kansas City, Mo.	2,562	1,304	50.9
Los Angeles	9,441	3,258	34.5
Minneapolis	800	552 (1952)	69.0
Newark, N. J.	30,000	10,407	34.7
New York	155,000	40,819	26.3
Philadelphia	21,071	6,066	28.8
Springfield, Mass. (Mobile Unit)	2,400	3,620 (Dec., 1947 to Dec., 1957)	15.1
Wilkes-Barre, Pa.	21,565	9,039	41.9
Amalgamated Laundry Workers, New York	18,000	3,721 (March 31, 1956, to March 31, 1957)	20.7
Amalgamated Lithographers of America, New York	7,500	2,600	34.7
American Federation of Labor Medical Service Plan, Philadelphia	32,000	13,600	42.5
Building Service Employees (Local 32B) International Union, New York	36,000	2,529 (Dec. 1, 1957, to April 30, 1958)	16.9
Medical Department: Pension Committee of the Joint Industry Board of the Electrical Industry, New York	7,000	6,300 (April, 1953, to July, 1955)	38.6
New York Hotel Trades Council and Hotel Association of New York City	34,000	12,150	35.7
New York Shipping Association—International Longshoremen's Association (Ind.), Brooklyn	12,000	3,382 (Sept. 24 to Dec. 31, 1957)	104.7‡
Union Eye Care Center, Chicago	92,734	5,090 (1956)	5.5
Union Health Service, Inc., Chicago	10,424	2,483	23.8
United Wire, Metal and Machine Medical Center, New York	4,000	2,345	58.6
Warehouse and Distribution Workers Union, Local 688, Labor Health Institute, St. Louis	6,361	11,354 (1955-1956)	89.2
Willys Unit, Local 12, UAW, Toledo	155,463	8,207 (July, 1955, to Jan. 1, 1958)	21.1

* Data as of December, 1957, unless otherwise indicated.

† Percentage utilization computed on yearly basis where utilization is indicated for more or less than a 1-yr. period.

‡ One explanation for this figure is that it possibly includes all visits made to the plan by a member. The requests data on utilization did not ask for patient-visits.

Table 3 is concerned with the number and percentage of persons utilizing the health centers' services over a one-year period. Where utilization figures were made available for more or less than a one-year period, the percentages were computed on an annualized basis. Yearly utilization ranged from a low of 5.5% in one plan to a high of 89.2% (excluding the plan with the footnote explanation and the plan with incomplete enrollment information). Of the 27 plans, 2 had a utilization of less than 10%; in 5 plans utilization ranged from 10 to 20%; in 5 plans it ranged from 21 to 30%; in 11 plans it ranged from 31 to 50%; in 3 plans utilization ranged from 51 to 75%; and in one plan offering comprehensive medical care it was over 89%. It should be noted that these percentages are based on figures supplied by the plans. They may or may not be accurate inasmuch as there are no uniform criteria or definitions for recording various types of data among the administrators of these plans. The footnote of table 3 offers one explanation for possible overstatement of utilization rates. There are other explanations which may similarly affect such rates.

Table 4 indicates the sources and methods of financing of the 29 union health centers surveyed. Collective bargaining represents the primary source of monies for which support of the centers is received. Varying arrangements exist among different unions for allocating portions of its health and welfare benefits for the operation of their health centers. Contributions from management constitute the only source of support for 25 such programs.

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Table 4 indicates the sources and methods of financing of the 29 union health centers surveyed. Collective bargaining represents the primary source of monies for which support of the centers is received. Varying arrangements exist among different unions for allocating portions of its health and welfare benefits for the operation of their health centers. Contributions from management constitute the only source of support for 25 such programs.

In one case, the union finances the entire cost of the program, presumably from members' dues. In one program, union members are assessed an amount above and beyond the employers contributions. In one program patients' fees for service rendered support the program, although the unions involved purchase shares to join the program and assume responsibility for any deficit incurred. Another program is maintained by a combination of employer contributions, union fees and contributions, and fees for service to members.

The tables and text presented here contain some of the highlights of the forthcoming publication by the Committee on Medical Care for Industrial Workers. The 1958 survey treats each union health center as a specific case study, and for each plan includes information and data on (1) history; (2) membership; (3) objectives of programs; (4) facilities; (5) financing; (6) budget and operating costs; (7) administration; (8) business and professional personnel; (9) benefits; and (10) preventive aspects of the services.

TABLE 4.—*Source and Methods of Financing of Twenty-nine Union Health Centers, 1958 Survey, Committee on Medical Care for Industrial Workers*

Plan	Source	Method of Financing
Amalgamated Clothing Workers of America		
Chicago	collective bargaining	Employer contributions to Social Benefit Fund; fund allocated $2.60 per mo. per member in 1956 and 1957
New York and New Jersey (Mobile Unit)	collective bargaining	Portion of employer contribution to Sick Benefit Fund (not stated)
New York	collective bargaining	Employers contribute 0.25% of gross payroll for operations of center; members assessed $10 annually
Philadelphia	collective bargaining	Employers contribute 0.75-1% of payroll; members assessed $20 to start program
International Ladies' Garment Workers' Union		
Allentown, Pa.	collective bargaining	Employer contributes 2% of gross payroll for health and welfare benefits, part of which maintains center
Boston	collective bargaining	Employer contributes 6.5% of gross payroll for health and welfare benefits, 2% of which maintains center
Chicago	collective bargaining	Employer contributes 1% of gross payroll to trust fund; fund allocates $1 per mo. per member to center, and makes up any deficit
Cleveland	collective bargaining	Employer contributes 3.5% of gross payroll to Health Fund, part of which maintains center
Harrisburg, Pa. (Mobile Unit)	collective bargaining	Amount contributed by employers not stated
Kansas City, Mo.	collective bargaining	Employers contribute 1% of gross payroll
Los Angeles	collective bargaining	Employers contribute percentage of gross payroll, portion of which maintains center
Minneapolis	collective bargaining	Employers contribute 1% of gross payroll
Newark, N. J.	collective bargaining	Employers contribute percentage of gross payroll, portion of which maintains center
New York	collective bargaining	Employers contribute 3.5-5% of gross payroll, portion of which maintains center
Philadelphia	collective bargaining	Employers contribute 6-9% of gross payroll; center receives 0.5%
Springfield, Mass. (Mobile Unit)	collective bargaining	Employers' contributions (amount not stated)
Wilkes-Barre, Pa.	collective bargaining	Employers contribute 3.5-5% of gross payroll, 2% of which is allocated to the center
Amalgamated Laundry Workers, New York	collective bargaining	Employers contribute 3% of payroll, portion of which maintains center
Amalgamated Lithographers of America, New York	collective bargaining	Employers contribute $4 per wk. per employee to Sickness and Accident Fund; less than 10% of this supports the center
American Federation of Labor Medical Service Plan, Philadelphia	collective bargaining	Employers' contributions to first fund according to individual contracts; local unions assessed $15 per single member, $30 for couple, and $37.50 for family (including children up to 9 years of age) for operation of center
Building Service Employees (Local 32B) International Union, New York	Union finances entire cost of program	
Medical Department: Pension Committee of the Joint Industry Board of the Electrical Industry, New York	collective bargaining	Employers contribute 5% of payroll to fund, a portion of which supports center
New York Hotel Trades Council and Hotel Association of New York City	collective bargaining	Employers contribute 5.5% of payroll to welfare program, a portion of which supports center
New York Shipping Association—International Longshoremen's Association (Ind.), Brooklyn	collective bargaining	Employers contribute 14 cents per hr. to welfare fund, of which 3 cents go toward operation of center
Union Eye Care Center, Chicago	Shares in $50 unit purchased by unions	Patients' fees and service assessment on unions support center
Union Health Service, Inc., Chicago	collective bargaining	Employers contribute to union welfare funds; unions pay plan $3 per mo. per member, $6 for a couple, and $7 for family
United Wire, Metal and Machine Medical Center, New York	collective bargaining	Employers contribute percentage of gross payroll to welfare fund, a portion of which operates center; originally supported by union
Warehouse and Distribution Workers Union, Local 688, Labor Health Institute, St. Louis	collective bargaining	Employers contribute 5% of payroll to welfare program, a portion of which supports center
Willys Unit, Local 12, UAW, Toledo	collective bargaining	Union contributions, members' fees—employer contributes 4 cents per hr. per employee; $25 affiliation fee paid by local unions; unions contribute 3 cents per member per mo.; patients pay reduced fees for certain services

MEDICAL NEWS

CALIFORNIA

Dr. Rigler Awarded Medal.—At the recent annual meeting of the American Roentgen Ray Society in Washington, D. C., Dr. Leo G. Rigler of Los Angeles was awarded the Caldwell medal. Dr. Rigler, visiting professor of radiology at University of California at Los Angeles School of Medicine and currently president of the Radiological Society of North America, presented the annual Caldwell lecture, which was established in honor of the late Dr. *Eugene W. Caldwell, New York City, past-president* of the American Roentgen Ray Society.

University News.—Dr. Edwin O. Field, Division of Radiobiology, Radiotherapy *Department*, Royal Marsden Hospital, London, has been appointed visiting instructor in medicine at Stanford University School of Medicine, San Francisco, for the academic year 1958-1959. Dr. Field will collaborate on hemotology research being conducted in the isotope laboratory by the departments of medicine and radiology.

COLORADO

University News.—Two research grants to members of the University of Colorado School of Medicine faculty for studies in muscular dystrophy and heart surgery have been announced. The Muscular Dystrophy Association of America, Inc., of New York City, has renewed for another year a grant of $21,500 for research by Cosmo G. Mackenzie, Sc.D., head, department of biochemistry. The project is titled "Identity and Treatment of the Primary Biochemical Lesions in the Muscular Dystrophies." A grant of $15,565 has been made to Dr. Ben Eiseman, professor of surgery, for a study of "Cardiac Valve Substitutes," by the National Heart Institute, Bethesda, Md.——A grant of $24,626, "to enhance the teaching program" of the department of physical medicine and rehabilitation, University of Colorado School of Medicine, Denver, has been received from the Office of Vocational Rehabilitation, U. S. Department of Health, Education and Welfare.

DISTRICT OF COLUMBIA

Society News.—The Washington, D. C. Dermatological Society has elected the following officers for 1958-1959: chairman, Dr. Raymond A. Osbourn, vice-chairman, Dr. Peter N. Horvath, and secretary-treasurer, Dr. June C. Shafer, (Arlington, Va.). Meetings will be held in Washington, D. C., on the fourth Thursday of every month, September through May.

Personal.—Dr. Mathew Ross, formerly of Beverly Hills, Calif., has taken office as medical director of the American Psychiatric Association in Washington, D. C., succeeding Dr. Daniel Blain, who resigned Sept. 1.——Dr. Benjamin Karpman, chief psychotherapist and consultant at Saint Elizabeths Hospital, was invited by the British Institute for the Study and Treatment of Delinquency to lecture in England on general psychiatric problems, Aug. 18-22. Dr. Karpman later spoke before the Spanish Psychological Society.

ILLINOIS

General Practitioners Meet in Chicago.—The 11th annual meeting of the Illinois Academy of General Practice will be at the Morrison Hotel, Chicago, November 3-6. There will be seven sessions of the scientific assembly, including, among other presentations, a panel of experts to answer questions on the business side of medicine; an academy film, "Building for Tomorrow"; the annual dinner dance Wednesday evening; and exhibits. The president and president-elect are, respectively, Drs. Abraham I. Doktorsky and Robert E. Heerens.

Society News.—The following officers of the Illinois Psychiatric Society have been elected for 1958-1959: president, Dr. Nathaniel S. Apter, Chicago; president-elect, Dr. Frances Hannett, Chicago; secretary-treasurer, Dr. Paul E. Nielson, Chicago; and councilors, Drs. Kalman Gyarfas, Chicago, and Lester H. Rudy, Galesburg.——The Illinois Society of Anesthesiologists has elected the following officers: president, Dr. Huberta M. Livingstone, Chicago; vice-president, Dr. Lawrence D. Ruttle, Joliet; secretary, Dr. Clifford A. Baldwin Jr., Wilmette; and treasurer, Dr. Robert F. Finegan, Elgin.

MASSACHUSETTS

Dr. Martha Eliot Awarded Medal.—At the 86th annual meeting of the American Public Health Association, October 28, in St. Louis, the Sedgwick Memorial Medal was presented to Dr. Martha May Eliot, head, department of maternal and child health, Harvard University School of Public Health, Boston, for "distinguished service in public health." Dr. Eliot formerly chief, U. S. Children's Bureau,

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Washington, D. C., in 1947 was the first woman to be elected president of the American Public Health Association. She is a distant relative of the late Charles W. Eliot, president of Harvard University.

University News.—Boston University has received $50,000 from the American Cancer Society, Massachusetts Division. It will be added to funds now being raised for the construction of a 3-million-dollar medical research building. The university has received $900,000 in a $1,500,000 drive to match a federal grant of a similar amount for this project.

MICHIGAN

Appoint Professor of Public Health.—The newly organized research and training service of the University of Michigan School of Public Health, Ann Arbor, will be under the direction of Dr. Hugh B. Robins, formerly health director of Calhoun County, who was appointed professor of public health practice, effective October 1. The research will be financed by a five-year grant of $167,620 from the W. K. Kellogg Foundation, Battle Creek. Dr. Robins, who has been a non-resident lecturer in the School of Public Health, formerly was health commissioner of Charleston, West Virginia.

Society News.—The new officers for 1958-1959 of the Western Michigan Pediatric Society are: president, Dr. John C. Montgomery, Grand Rapids; president-elect, Dr. Clarence L. Hoogerland, Alma; secretary-treasurer, Dr. Samuel S. Jacob, III, 201 Ann St., East Lansing; and assistant-secretary, Dr. Jerome E. Webber, Grand Rapids.

MISSISSIPPI

Society News.—The Mississippi Society of Anesthesiologists has elected the following officers: president, Dr. Thomas J. Marland, Jackson; vice-president, Dr. William E. Sheffield, Charleston; and secretary-treasurer, Dr. Curtis W. Caine, Jackson.

Personal.—Dr. Durward L. Blakey became director of the Division of Preventable Disease Control of the Mississippi State Board of Health on July 1, succeeding Dr. A. L. Gray, who was elevated to the position of state health officer.

University News.—Construction of 80 student housing units on the University of Mississippi School of Medicine campus has begun. Four buildings of 20 units each on Jackson's Lakeland Drive will furnish 44 two-bedroom and 36 efficiency apartments available to single or married students, interns, and residents. Cost of the project will be amortized from rent revenues.——The Mississippi Heart Association has awarded eight seeding research grants and a cardiovascular fellowship to The University of Mississippi School of Medicine, Jackson, totaling $18,800. The health agency also allocated $17,000 toward establishment of a cardiovascular chair at the new medical school.

MISSOURI

Research Training Grant in Microbiology.—The National Institute for Allergy and Infectious Diseases of the U. S. Public Health Service has made a grant of $225,690 for research training in microbiology and virology to St. Louis University School of Medicine, St. Louis, for a five year period. The new program will offer scientists who have Ph.D. degrees in other sciences an opportunity to broaden their training and experience along lines pursued in the microbiology department at this school of medicine. Opportunity will be offered also to provide research training in infectious diseases to young physicians who plan to make microbiology and related basic sciences their career. The new grant, which will augment research in microbiology for medical students, will be under the direction of Dr. R. Walter Schlesinger, director of the department, and Edwin L. Minard, Ph.D., associate professor of microbiology.

NEW JERSEY

Regional Meeting of College of Physicians.—The 13th regional meeting of the American College of Physicians (New Jersey) will be in the auditorium of the Mutual Benefit Life Insurance Company, 520 Broad St., Newark, N. J., November 12, to which all interested physicians and their wives are invited. The scientific program, limited to diseases of the adrenal gland, will be presented by members of the faculty of Columbia University College of Physicians and Surgeons, New York City. Following the symposium, Dr. Frank B. Berry, assistant secretary of defense (health and medical), Washington, D. C., will speak on the relationships between military and civilian medicine. The speaker at the informal dinner will be Dr. Dwight L. Wilbur, San Francisco, president of the American College of Physicians.

International Symposium on Tuberculosis.—Deborah Sanatorium and Hospital at Browns Mills, will sponsor an international symposium on tuberculosis, November 20-22. The morning and afternoon panel sessions will be held at the Bellevue-Stratford Hotel in Philadelphia. The general subjects of the six panels will be "Chemotherapeutic Prophylactic Measures for Tuberculosis"; "The Hospital and Home, Roles in Tuberculosis Management"; "The Problem of Relapse of Tuberculosis Lesions Under Chemotherapy"; "Duration of Drug Treatment"; "Pathological Problems"; "Tuberculosis Case-Finding"; "Surgical Aspects of Treatment of Tuberculosis"; and "The Future Problem of Tuberculosis, Program for its Control." Nearly 50 authorities in this field will serve on the panels. Among the panel members from foreign countries will be Drs. Georges J. Canetti, Paris, France, Johannes Holm, Geneva, Switzerland; John R. Bignall, London, England; Hugh E. Burke, Montreal, Canada; Frederick R. Edwards, Liverpool, England, John M. Robson, London, England; Philip M. D'Arcy Hart, London, England; Frederick G. Kergin, Toronto, Canada; Carl B. Semb, Oslo, Norway, and Hans J. N. Ustvedt, Oslo, Norway. Registration is open without fee to all interested physicians and surgeons. This symposium, which has been endorsed by the National Tuberculosis Association, the American Trudeau Society, and the American College of Chest Physicians, is the first of a projected series under Deborah sponsorship.

Society News.—Officers of the Radiological Society of New Jersey for 1958-1959 are: Dr. George G. Green, Asbury Park, president, Dr. William L. Palazzo, Teaneck, vice-president, Dr. Andrew P. Dedick Jr., Red Bank, secretary, and Dr. William L. Bonnet, Trenton, treasurer. The meeting dates remain: annual meeting in May in Atlantic City; and the fall meeting, October-November, in Newark.

NEW YORK

Dr. Weiss Receives Lectureship Award.—The Albany Medical College of Union University has given its second annual honorary lectureship award to Dr. Paul A. Weiss of the Rockefeller Institute for Medical Research, New York City. This award is given in recognition of "distinguished service to mankind in the fields of science, medicine and teaching." Last year the award was given to William M. Clark, Ph.D., emeritus professor of physiological chemistry at Johns Hopkins University School of Medicine, Baltimore.

University News.—Dr. Ponduri Venketa Ramanarao, professor of bacteriology, Osmania Medical College, Hyderabad, capital of the state of Andhrapradesh, India, has joined the department of microbiology of the State University of New York Upstate Medical Center in Syracuse as a participant under an International Cooperation Administration training program.

Society News.—At the meeting of the New York Allergy Society, November 17, at the Beekman Tower Hotel, 1st Ave. and 49th St., New York City, 8:30 p. m., there will be a panel discussion on "The Single Repository Injection Treatment of Hay Fever," moderated by Dr. Robert A. Cooke, chief of the Institute of Allergy, Roosevelt Hospital, New York. Members of the panel will be Drs. Mary E. H. Loveless of Cornell University Medical College; John H. Mitchell and William F. Mitchell, both of Ohio State University Medical College; and William B. Sherman, chief of allergy, Presbyterian Hospital, New York.

New York City

Grant to Aid Liberian Institute.—The American Foundation for Tropical Medicine, 345 Madison Avenue, announces that Eli Lilly and Company of Indianapolis has made a grant to support the activities of the Liberian Institute of the foundation during the present year—an award similar to the one made by the same company last year. This support, the foundation says, has assisted in making possible expanded research activities of the institute in Liberia, West Africa.

Hospital News.—The Department of Pathology of The Mount Sinai Hospital, New York, has been awarded $171,000 by the U. S. Public Health Service as a research training grant for experimental pathology for five years. Under the program, training of residents and research fellows (trainees) in experimental pathology will be integrated with that of anatomical and clinical pathology. The grant also permits the appointment of a coordinator for the organization of the training in various techniques of experimental pathology.

Hungarian Association Meeting.—The annual Semmelweis meeting of the American Hungarian Medical Association will be November 14 at 8:30 p. m., at the New York Academy of Medicine, Hosack Hall. Dr. Max Thorek of Chicago, founder of the International College of Surgeons, will speak on "Impending Death Under Anesthesia," and Dr. Paul H. Hoch, New York State commissioner of mental hygiene, on "Some Remarks on Semmelweis from a Psychiatric Point of View." Dr. Alexander Borota is president of the society and Dr. G. Peter Halberg, secretary.

Annual Wyckoff Lecture.—Dr. Rodney Smith, senior surgeon to the Victoria Hospital for Children, London, England, and surgical tutor for the Royal College of Surgeons, will deliver the annual John Wyckoff lecture of the New York University College of Medicine at 4:30 p. m., November 5, in the Alumni Hall, 31st Street and First Avenue, on "Surgery Before and After John Hunter." The Wyckoff lecture is sponsored by the Phi Delta Epsilon Fraternity in honor of the late Dr. John H. Wyckoff, who was dean of the New York University College of Medicine from 1932 to 1937.

Conference on Study of Sex.—The first annual conference of the Society for Scientific Study of Sex will be at the Barbizon-Plaza Hotel on Nov. 8 at 9 a. m. The general subjects for discussion will be "Therapeutic Abortion" and "Frigidity." This new society proposes to organize symposiums, seminars, workshops, and conferences to consider problems in the sexual area and later to publish a scientific journal devoted to relevant original studies and reports. The list of charter members contain names of medical scientists who are widely known for their research work. The chairman of the program committee is Dr. Hans M. Lehfeldt, 784 Park Ave., New York 21.

NORTH CAROLINA

New Chairman of Department of Microbiology.—Duke University School of Medicine, Durham, announces that Norman H. Conant, Ph.D., professor of mycology at Duke, has been appointed chairman of the department of microbiology to succeed Dr. David T. Smith, who has been head of the microbiology department since the school of medicine opened in 1930. Dr. Smith resigned as chairman in order to devote more time to teaching and research. He will retain his full professorship and continue as an active teacher. Dr. Conant joined the Duke medical faculty in 1935. He has held consulting and advisory posts that include tropical medicine consultant to the Secretary of War and member of the advisory panel for the office of naval research.

NORTH DAKOTA

General Practitioners Meeting at University.—Dr. Alan K. Johnson, Williston, N. D., president, North Dakota Chapter, American Academy of General Practice, announces that the annual meeting and postgraduate refresher course of the North Dakota Academy of General Practice will be held at the University of North Dakota School of Medicine, November 21-22. Members of the American Academy of General Practice from North and South Dakota and Minnesota are especially invited to attend, plus prospective members from any of these areas. Dr. Richard L. Varco, of the department of surgery, University of Minnesota, and Dr. Maurice H. Stauffer of the department of gastroenterology of the Mayo Clinic, will be guest speakers for the session. For information write Dr. Richard D. Nierling, ℅ Jamestown Clinic, Jamestown, North Dakota.

OHIO

Phi Delta Epsilon Lectureship.—The annual lecture of Phi Delta Epsilon Fraternity, under the auspices of Beta Epsilon Chapter, will be held at the University of Cincinnati College of Medicine, November 20 at 8:30 p. m. The lecturer will be Dr. Claude S. Beck of Cleveland, who will speak on coronary heart disease.

Personal.—Dr. Relja Nedeljkovic has been appointed the Mannheimer Memorial Fellow at the May Institute for Medical Research of the Cincinnati Jewish Hospital. A native of Yugoslavia, Dr. Nedeljkovic spent five years in Belgium, where he engaged in research. At the May Institute, he is collaborating in studies on arteriosclerosis.

Dr. Page Receives Award.—The American Heart Association, at its annual meeting in San Francisco, October 25, gave its award for cardiovascular research to Dr. Irvine H. Page, director of research of the Cleveland Clinic Foundation. Dr. Page was cited for his contribution on hypertension. He will receive $2,500 and a scroll.

Dr. Levine to Lecture on Diabetes.—The Phi Delta Epsilon Fraternity, Upsilon Chapter, will hold its 1958 national lecture at the Cleveland Medical Library Auditorium, November 19, 8:30 p. m. The speaker will be Dr. Rachmiel Levine, chairman, department of medicine, Michael Reese Hospital, Chicago, and his subject will be "Problems in Etiology of Diabetes Mellitus."

OKLAHOMA

Society News.—The Oklahoma Society of Anesthesiologists has elected the following officers: president, Dr. Carl H. Guild, Jr., Tulsa; president-elect, Dr. Harlan K. Sowell, Oklahoma City; and secretary-treasurer, Dr. Lawrence Stream, Oklahoma City.

Personal.—Dr. Bert T. Brundage, of Thomas, has been appointed by Governor Raymond Gary a member of the state board of health to succeed Dr. Roy L. Fisher, of Frederick, who has resigned.——Dr. Gilbert S. Campbell, former assistant professor of surgery, University of Minnesota Medical School, has been appointed professor of surgery at the University of Oklahoma Medical School and chief of surgical service at the Oklahoma City Veterans Administration Hospital, Oklahoma City. As surgery chief at the hospital, he succeeds Dr. Fred A. Quenzer, who transferred to the McKinney, Texas, VA hospital last May.

PENNSYLVANIA

Nutrition Education Programs.—The commission on nutrition of the Medical Society of the State of Pennsylvania, under the chairmanship of Dr. Michael G. Wohl, Philadelphia, in cooperation with the National Vitamin Foundation, will present at the monthly meeting of various county medical societies, discussions on the basic and practical aspects of nutrition as they relate to disease. Several of these discussions have already been held and the remaining ones will be held as follows: Before the Delaware County Medical Society in Media, November 13, Willard Krehl, Ph.D., New Haven, Conn., will discuss "General Therapeutic Nutrition with Emphasis on Arthritic Disease"; before the Northampton County Medical Society at Easton, November 18, Robert W. Hillman's (Brooklyn) subject will be "Treatment of Obesity with Particular Reference to Nutrition"; before the Lancaster County Medical Society, Lancaster, December 3, Dr. Richard W. Vilter, Cincinnati, will speak on "Nutritional and Metabolic Aspects of Cardiovascular Disease"; the two objectives of this program being to stimulate interest in clinical nutrition at state and county levels and to disseminate factual information on nutrition to practicing physicians and the laity; and before the New Jersey Academy of General Practice in Atlantic City, January 10, 1959, Dr. Norman H. Jolliffe, New York City, will discuss "Fats, Cholesterol and Atherosclerosis—a Progressive Report."

Society News.—At a meeting of the Pittsburgh Roentgen Society the following officers were elected for 1958-1959: president, Dr. Harrison H. Richardson, Rochester; vice-president, Dr. Eugene R. Kutz, Pittsburgh; secretary, Dr. Erwin Beck, 3500 Fifth Avenue, Pittsburgh 13; and treasurer, Dr. Julius W. Ambrose, Pittsburgh.

RHODE ISLAND

The Danforth Oration.—Dr. Paul C. Colonna, until recently professor of orthopedic surgery, University of Pennsylvania School of Medicine, Philadelphia, will serve as orthopedic surgeon-in-chief pro tempore at the Rhode Island Hospital, Nov. 6-8. On Nov. 6 he will deliver the Murray S. Danforth Oration on "The Ununited Hip."

SOUTH CAROLINA

Society News.—The South Carolina Chapter of the American Academy of General Practice has installed the following officers: president, Dr. Homer M. Eargle, Orangeburg; president-elect, Dr. I. Ripon Wilson, Charleston; vice-president, Dr. William T. Hendrix, Spartanburg; and secretary-treasurer, Dr. Horace M. Whitworth, Greenville.

Personal.—Dr. Kenneth M. Lynch Jr., dean of the faculty of the Medical College of South Carolina, Charleston, has been honored by award of the "Medallion and Citation" of the American Cancer Society for "outstanding service in the cause of cancer control." The award was made at the South Carolina Division's annual meeting April 1.——Dr. Hugh S. Brown, for the past nine years has maintained a private practice in Spokane, Wash., as a specialist in internal medicine and cardio-vascular diseases, has been appointed medical director of Liberty Life Insurance Company, succeeding Dr. W. S. Fewell, who has retired.

TEXAS

Hospital News.—A grant of $52,000 for a study of how electronic data processing equipment may best be adapted for hospital use has been made by The John A. Hartford Foundation to the Hospital Research and Educational Trust. Dr. Edwin L. Crosby, chairman, board of trustees of the trust, said the study would require about four months and would be carried out in Dallas, at the Baylor University Hospital. The study will include the areas of patients' billings, perpetual inventories, medical records and statistics, payroll and insurance. The Hospital Research and Educational Trust, a nonprofit organization, with grants from foundations and other sources, conducts projects for general improvement of knowledge and practice in the hospital field.

Personal.—Dr. Cyril J. Ruilmann, director of mental health and hospitals, Board for Texas State Hospitals and Special Schools, has been elected chairman of the Southern Regional Council on Mental Health Training and Research, for 1958-59.——Dr. Kenneth M. Earle, associate professor of pathology, University of Texas Medical Branch, Galveston, has been made assistant dean (undergraduate) and Dr. Stephen R. Lewis, assistant professor of surgery at the University of Texas Medical Branch, has been made assistant dean (graduate and postgraduate).——Dr. Herschel F. Connally has been appointed assistant executive director of the Medical Branch of the University of Texas, Galveston. Dr. Connally has been a member of the Commission on Higher Education for the State of Texas.

VERMONT

State Medical Election.—At the annual meeting of the Vermont State Medical Society in Bretton Woods, New Hampshire, in September, Dr. Wayne Griffith of Chester was installed as president and the officers elected were : Dr. Frederick W. Van Buskirk, Burlington, president-elect; Dr. Benjamin F. Clark, St. Johnsbury, vice-president; Dr. Oliver H. Durand, Bennington, secretary; Dr. Gordon B. Smith, Rutland, treasurer; and Dr. William J. Powers, Rutland, speaker of the house.

The following were awarded memberships in the 50-year club: Drs. Benjamin D. Adams, Burlington; Oliver N. Eastman, Burlington; Arthur T. Gillette, Dorset; Archie L. Leonard, Lyndonville; William McFarland, Barre; and John H. Woodruff, Barre.

The annual meeting next year will again be a joint meeting with the New Hampshire Medical Society at the Equinox House in Manchester, Vermont, October 1-4.

WASHINGTON

State Medical Election.—At the annual meeting of the house of delegates of the Washington State Medical Association in Spokane, September 17, the following officers were elected: Dr. Emmett L. Calhoun, Aberdeen, president; Dr. Frederick A. Tucker, Seattle, president-elect; Dr. Milo T. Harris, Spokane, immediate past-president; Dr. Edward C. Guyer, Seattle, vice-president; Dr. Wilbur E. Watson, Seattle, secretary-treasurer; and Dr. Homer W. Humiston, Tacoma, speaker, house of delegates.

GENERAL

22,880 Traffic Deaths in Eight Months.—A forecast by the National Safety Council, Chicago, September 30, was to the effect that a saving of 2,000 lives on the nation's highways in 1958 is a realistic goal. The council based its forecast on the fact that the traffic death toll of 22,880 for the first eight months of this year is 6% below the same period last year.

For the eight months, 32 states had better records than for the same period the year before and 186 cities still had perfect records, the three largest being Orlando, Florida, Evanston, Illinois and Bethlehem, Pennsylvania.

Society News.—The American Academy of Physical Medicine and Rehabilitation has elected the following officers for 1958-59; Dr. Louis B. Newman, Chicago, president; Dr. Clarence W. Dail, San Gabriel, Calif., president-elect; Dr. Ray G. Piaskoski, Wood, Wis., vice-president; Dr. Harriet E. Gillette, Atlanta, Ga., secretary; Dr. James W. Rae Jr., Ann Arbor, Mich., treasurer; and Dorothea C. Augustin, Chicago, executive secretary.

Regional Meeting of College of Physicians.—The regional meeting of the American College of Physicians (New England states, Quebec, and Atlantic Provinces) will be at the Chateau Frontenac Hotel, Quebec, Canada, November 7-8, to which a cordial invitation is extended to all physicians of these regions. There will be no registration fee. In addition to the scientific session, at the banquet Friday evening, Dr. Dwight L. Wilbur, San Francisco, president, American College of Physicians; Monseigneur A. M. Parent, rector of Laval University; and Edward R. Loveland, Philadelphia, executive secretary of the college, will be the guests of honor. The ladies' program includes a luncheon, tour of old Quebec and Laval University, and a visit to the shrine of Saint Anne de Beaupre.

Surgeons' Election.—Dr. Henry W. Meyerding, of Rochester, Minn., was inducted as president of the International College of Surgeons at ceremonies in the Palmer House, Sept. 19, succeeding Dr. Carlos Gama of Sao Paulo, Brazil. Other officers installed were: Dr. A. Mario Dogliotti of Torino, Italy, president-elect, to take office as president in 1960; Dr. Lyon H. Appleby, Vancouver, B. C., first vice-president; Dr. Max Thorek, Chicago, secretary-general; Dr. Ross T. McIntire, Chicago, executive director; Dr. Clement L. Martin, Chicago, treasurer. Dr. Edward L. Compere, Chicago, was installed as president of the United States Section, succeeding Dr. Curtice Rosser, Dallas. Dr. Harry E. Bacon, Philadelphia, was inducted as president-elect, and Dr. A. Neal Owens, New Orleans, as first vice-president.

Meeting of Tropical Medicine Society.—The seventh annual meeting of the American Society of Tropical Medicine and Hygiene will be Nov. 5-8 at the University of Miami School of Medicine, Coral Gables. In addition to scientific papers by local and South American scientists, the 23rd annual Charles F. Craig lecture will be given by Dr. Jerome T. Syverton, University of Minnesota Medical School, Minneapolis. At the dinner Friday evening, the presidential address will be delivered by Donald L. Augustine, Sc.D., Waban, Mass., of the Harvard School of Public Health, on "The Worm Turned—Action and Reaction." The Walter Reed Medal will be presented by Willard H. Wright, Ph.D., Washington, D. C., chairman of the award committee. The next annual meeting will be in Indianapolis October 28-31, 1959.

Conference on Lead Hygiene in Chicago.—The Lead Industries Association, New York City, will present a Lead Hygiene Conference at the Drake Hotel, Chicago, Nov. 6-7. Chairmen of the three sessions will be Dr. Lemuel C. McGee, Dr. George M. Wheatley and Mr. Manfred Bowditch, director of health and safety of the association. Speakers and subjects will include the following:

Effect of Environmental Temperature on Lead Poisoning, Anna M. Baetjer, Sc.D., Baltimore.
Health Control in Storage Battery Manufacture, Dr. Elston L. Belknap, Milwaukee.
Studies of the Lead Content of Waters from Red Lead Painted Standpipes, Dr. Higdon B. Elkins, Iowa City, Iowa.
Common Errors in the Diagnosis of Plumbism, Dr. Rutherford T. Johnstone, Los Angeles.

Attendance is limited to 150 persons. Registration fee for members is $10. For information write the Lead Industries Association, 60 E. 42nd St., New York 17, New York.

Recipients of Pediatric Fellowships.—The recipients of the annual Wyeth Laboratories pediatric residency fellowships have been announced by Dr. Philip S. Barba, past-president of the American Academy of Pediatrics and chairman of the fellowship selection committee. The physician-recipients, from 13 different states, are the first group to benefit from this fellowship program established recently. Each will receive a grant of $4,800 providing for a two-year postgraduate course in pediatrics. The cost of the first three years of the project will be $195,000. Those receiving the fellowship awards included:

Drs. Sidney W. Klein, Baltimore, Md.; Robert B. Cole, Cleveland, Ohio; Floy C. Helwig, Baltimore; Warren D. Grover, Camp LeJeune, N. C.; Luther B. Travis, Fort Benning, Ga.; John D. Siegfried, Red Lake, Minn.; George T. Kimbrough, Birmingham, Ala.; Donald E. Carey, New Orleans, La.; Marvin L. Rallison, Minneapolis; Allan L. Drash, Baltimore; William G. Kenney, Rochester, N. Y., Paula Neyman, New York City; Keith Hammond, Paoli, Ind.; Robert O. Hickman, Salt Lake City; John C. Gilhland, Jackson, Miss.; Jon L. Karlsson, Santa Rosa, Calif., John I. Larkin, Albany, N. Y.; William A. Moon Jr., Denver; George A. Lentz, Baltimore; and Paul J. Uhlig, Oceanside, Calif.

Essay Contest on Maxillofacial Surgery.—The American Society of Maxillofacial Surgeons has announced an essay contest for papers based on some original research (either clinical or experimental) in maxillofacial surgery. Any medical or other university graduate may enter. The essays shall be based on work not previously published, even in part, and shall be submitted in triplicate, in English only, and not more than 4,000 words in length. Manuscripts will not be accepted by the Award Committee after April 1, 1959, and should be sent by registered mail. Certificates will be given to the authors of the first and second prize essays. The winners of these certificates will receive $300 and $200, respectively for travelling expenses. The two winning papers are to be read by the authors before the annual convention of the society, May 10-14, 1959, at the Palmer House, Chicago. The submitted essay becomes the property of the American Society of Maxillofacial Surgeons and shall not be published, without the written permission of the Secretary of the Society, in any journal other than the official journal of the Society, *The American Journal of Surgery*. Information may be obtained from the Secretary of the Society, Dr. Orion H. Stuteville, 700 N. Michigan Ave., Chicago 11.

New Journals of Pharmacology.—Three new journals of pharmacology have been announced. *Biochemical Pharmacology*, an international journal devoted to research into the development of biologically active substances and their mode of action in the biochemical and subcellular level, is edited by a board of which Dr. Alexander Haddow, of the Chester Beatty Research Institute, is chairman. The regional editor for the United States is Dr. Arnold D. Welch, of Yale University, New Haven, Conn. The first volume appeared in July. The Academic Press, Inc., of New York City, has announced the publication of *Toxicology and Applied Pharmacology* with Harry W. Hays, Ph.D., of the National Research Council, as managing editor, assisted by Frederick Coulston, Ph.D., of the Sterling-Winthrop Institute, and Dr. Arnold J. Lehman, of the Food and Drug Administration. The first number is to appear in January, 1959. Interscience Publishers, of New York City, have announced an international bimonthly periodical, *Journal of Medicinal and Pharmaceutical Chemistry*, the first issue to appear toward the end of the year. This will have as editors Mr. Arnold H. Beckett, of the Chelsea College of Science and Technology, London, and Alfred Burger, Ph.D., of the University of Virginia, Charlottesville.

Awards for Research in Radiology.—On behalf of the James Picker Foundation, The National Academy of Sciences–National Research Council announces the continued availability of funds in support of radiological research. The program is oriented toward, but not necessarily limited to, the diagnostic aspects of radiology. Support is not restricted to citizens of the United States or to laboratories within this country. Three types of support are offered: (1) grants-in-aid, designed to encourage investigations offering promise of improvement in radiological methods of diagnosis or treatment of disease, awarded to institutions, rather than to individuals; (2) grants for scholars, designed to bridge the gap between the completion of fellowship training and the period when the young scientist has demonstrated his competence as an independent investigator, applied for by the institution on behalf of the prospective scholar; (3) fellowships in radiological research open to candidates seeking to gain research skills leading to investigative careers in the field of radiology. Candidates must hold the M.D., Ph.D., or Sc.D. degree or the equivalent. Preference will be given to applicants who are 35 years of age or less. Applications for the fiscal year 1959-1960 should be submitted bv Dec. 1. Information and application blanks may be obtained from the Division of Medical Sciences, Room 411, National Academy of Sciences–National Research Council, 2101 Constitution Ave., N. W., Washington 25, D. C. Applications for support of studies to be carried out in Canada should be directed to the Awards Office, National Research Council of Canada, Ottawa 2, Canada.

Outbreaks of Infectious Encephalitis.—According to the Morbidity and Mortality Weekly Report of the United States Public Health Service, dated September 26, 1958, a total of 116 cases of infectious encephalitis was reported for the current week; 30 in Kansas, 17 in California, 10 in Georgia, 9 in Nebraska, 7 in Ohio, and 6 in Texas. The report for Kansas showed that 1 of the 30 had been confirmed as western equine and 1 as St. Louis encephalitis, 2 as mumps encephalitis, and 26 as unknown etiology. Four cases reported as "meningococcal encephalitis" were placed in the category of meningococcal infections.

The California Department of Public Health reports that 3 new cases of arthropod-borne encephalitis were confirmed during the 2-week period ended September 18. In the 2 preceding 2-week periods 12 and 10 cases had been confirmed. The 3 new cases were diagnosed as western equine encephalitis infections, making a total of 31 confirmed cases of this disease. Three cases of St. Louis encephalitis have been confirmed this year. One of the 3 cases of western equine encephalitis was presumably contracted in Santa Clara County, which is outside of the usual endemic area for arthropod-borne encephalitis, but the individual was reported to have been in Utah during the summer although the exact dates of his stay were not known.

The Colorado Communicable Disease Summary for the week ended September 6 contains a report that 4 cases of arthropod-borne encephalitis have been confirmed as the western equine type. Four other cases have been ruled out by laboratory tests as cases of arthropod-borne encephalitis.

Competition for Treatise on Rheumatic Diseases.—The 4th International Award AQUI TERME (Hot Springs) of Rheumatology, under the auspices of the Italian Society of Rheumatology, has been announced. The international competition is for a prize for an unpublished treatise on the rheumatic disease (award 1,000,000 lire [$1,600]) and for a publication in the form of a composition or monograph on the subject of rheumatology (award 500,000 lire).

Rules are as follows:

Treatises seeking the prize of lire 1,000,000 must discuss problems involving the articular physiopathology, the clinical aspects or treatment of the arthritic or rheumatic diseases.

Publications seeking the prize of lire 500,000 must discuss rheumatologic arguments in a form of a composition or monograph.

This competition is open to all Italian and foreign physicians.

The prize of Lire 1,000,000 might be awarded to one publication or divided between two publications. The prize of lire 500,000 is indivisible.

The committee of award will consist of six authorities on rheumatic and arthritic diseases.

The jury will have the right to cancel this competition if in its judgment the quality of the publications will not be up to standards.

Publications may be written in Italian, French, English, German, or Spanish. It is desirable to make an abstract of the publication in either Italian or French.

Publications must be counter-signed with a motto; the same motto must be repeated on the sealed envelope on which the following indications must be written: motto, the name and address of the author or authors.

Publications must be typewritten (for award of lire 1,000,000); typewritten or printed (for award of lire 500,000) and send in 8 copies, postage prepaid and insured to: Azienda Autonoma di Cura di Acqui Terme (Piemonte, Italy).

The closing date of the competition is December 31, 1958.

EXAMINATIONS AND LICENSURE

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES, INC.

Educational Council for Foreign Medical Graduates, Inc.: Medical schools in the United States and Foreign Countries, Feb. 17 and Sept. 22. Executive Director, Dr. Dean F. Smiley, 1710 Orrington Ave., Evanston, Ill.

BOARDS OF MEDICAL EXAMINERS

Alaska:[*] On application in Anchorage and Juneau. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

California: *Oral Examination.* San Francisco, November 15. *Oral and Clinical Examination for Foreign Medical School Graduates.* San Francisco, June 15; Los Angeles, August 17; San Francisco, November 16. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

Colorado: *Endorsement.* Denver, Oct. 14. *Written.* Denver, Dec. 9-10. Exec. Sec., Mrs. Beulah H. Hudgens, 715 Republic Bldg., Denver 2.

Guam: *Subject to Call.* Act. Sec., Dr. F. L. Conklin, Agana.

Maine: *Examination and Reciprocity.* Portland, Nov. 12-14. Sec., Dr. Adam P. Leighton, 142 High St., Portland.

New Mexico:[*] *Examination and Reciprocity.* Santa Fe, Nov. 17-18. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

Ohio: *Examination.* Columbus, Dec. 16-18. *Endorsement.* Columbus, Dec. 16-18. Sec., Dr. H. M. Platter, Wyandotte Bldg., Columbus 15.

South Carolina: *Endorsement.* Columbia, Dec. 9. Sec., Dr. H. E. Jervey, Jr., Blanding Bldg., Columbia.

Texas:[*] *Examination and Reciprocity.* Fort Worth, Dec. 4-6. Sec., Dr. M. H. Crabb, 1714 Medical Arts Building, Fort Worth 2.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: *Examination.* Juneau, Nov. 4. Sec., Dr. R. Harrison Leer, Room 204, Alaska Office Bldg., Juneau.

District of Columbia: *Reciprocity. Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington 6.

Kansas: *Examination and Reciprocity.* Kansas City, Nov. 24-25. Sec., Dr. L. C. Heckert, Pittsburg.

Oklahoma: *Examination.* Oklahoma City, Mar. 27-28. Exec. Sec., Mrs. L. Haidek, 813 Braniff Bldg., Oklahoma City.

Texas: Certificates issued by reciprocity and waiver on the first and fifteenth of each month. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Milwaukee, Dec. 6, Madison, Apr. 4. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

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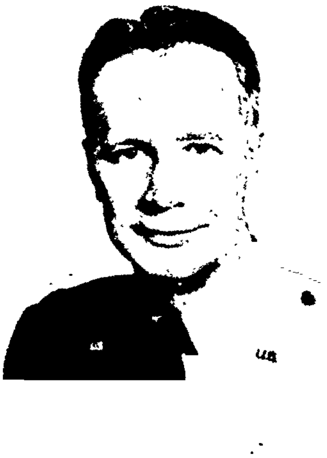
[*] Basic Science Certificate required.

GOVERNMENT SERVICES

AIR FORCE



Colonel Benford Named Director of Medical Publication Agency.—Col. Robert J. Benford, M. C., has been named director of the Armed Forces Medical Publication Agency and editor of the *U. S. Armed Forces Medical Journal.* He succeeds Capt. Bennett F. Avery, M. C., U. S. N., who has been appointed national coordinator of the Medical Education for National Defense program.

Colonel Benford, who recently completed a tour of duty in the Office of the Assistant Secretary of Defense (Health and Medical), served as staff surgeon of the XX Bomber Command in World War II. He is a member of the editorial advisory board of *Aero/Space Engineering*, a monthly journal of the Institute of Aeronautical Sciences, and the author of "Doctors in the Sky," a history of aviation medicine.

General Harry Armstrong Retires.—Major Gen. Harry G. Armstrong, formerly surgeon general of the U. S. Air Force, retired Sept. 1, after almost 30 years of military service. While commandant of the School of Aviation Medicine, he established, on Feb. 9, 1949, the first Department of Space Medicine. In 1935 he was the first physician to attempt a delayed opening parachute jump, of which a report was published in The Journal, Oct. 5, 1935. He was the first to recognize explosive decompression as one of the most hazardous problems in the use of pressurized cabins and, in many of those experiments, he himself was the test subject.

General Armstrong received a Master of Arts degree in internal medicine from the University of Cincinnati and a Master of Science degree in physiology from the University of Toronto. He was elected president of both the Aero Medical Association and the Association of Military Surgeons in 1951. For the past three years he has been surgeon of the U. S. Air Forces in Europe.

ARMY

Personal.—On Oct. 1, Col. Howard W. Doan, M. C., became surgeon of the First Army, with headquarters at Governors Island, New York, succeeding Brig. Gen. Roger G. Prentiss who retired on Sept. 30. Colonel Doan's previous assignment was deputy commander of the Fitzsimons Army Hospital in Denver.

General Prentiss Retires.—Brig. Gen. Roger G. Prentiss, surgeon of the First Army with headquarters at Governors Island, New York, retired Sept. 30, after more than 30 years' service as a medical officer. When World War II broke out, General Prentiss was called to the surgeon general's office in Washington, D. C., to become director of medical research and development. Later he went to Europe with a special intelligence team whose mission was to enter captured German towns to collect data on technical advances by the Germans. In 1950 he became chief of the Historical Division in the surgeon general's office and in 1951 executive officer of the surgeon general's office. At a parade in his honor on Sept. 24, First U. S. Army Commander, Lieut. Gen. B. M. Bryan, presented to General Prentiss the second award of the Legion of Merit. General and Mrs. Prentiss plan to make their home in Florida.

Establish Medical Research and Development Command.—The surgeon general's office has announced the activation of the Army Medical Service's new Research and Development Command. Brig. Gen. Joseph H. McNinch has been appointed Commanding General of the new command and will assume his duties about Nov. 1. General McNinch is returning to Washington from his post as surgeon, Armed Forces Far East, U. S. Eighth Army, Japan.

Research studies with which the new command will be concerned include the medical effects of ionizing radiation; the prevention and treatment of communicable diseases in overseas areas; surgical problems in the care of the burned and wounded; medical problems of operations under temperature extremes and other adverse environmental conditions; and the physiological and neuropsychiatric problems of military operations.

NAVY

Medical Corps Retirements.—Capt. William W. Ayres, M.C., was placed on the retired list on Sept. 1, 1958, after completing more than 20 years' active service. Having been specially commended by the head of the executive department for his performance of duty in actual combat, he will be advanced on the retired list to the rank of rear admiral.

Capt. Victor G. Colvin, M.C., was placed on the retired list on Sept. 1, after completing more than 27 years' active service.

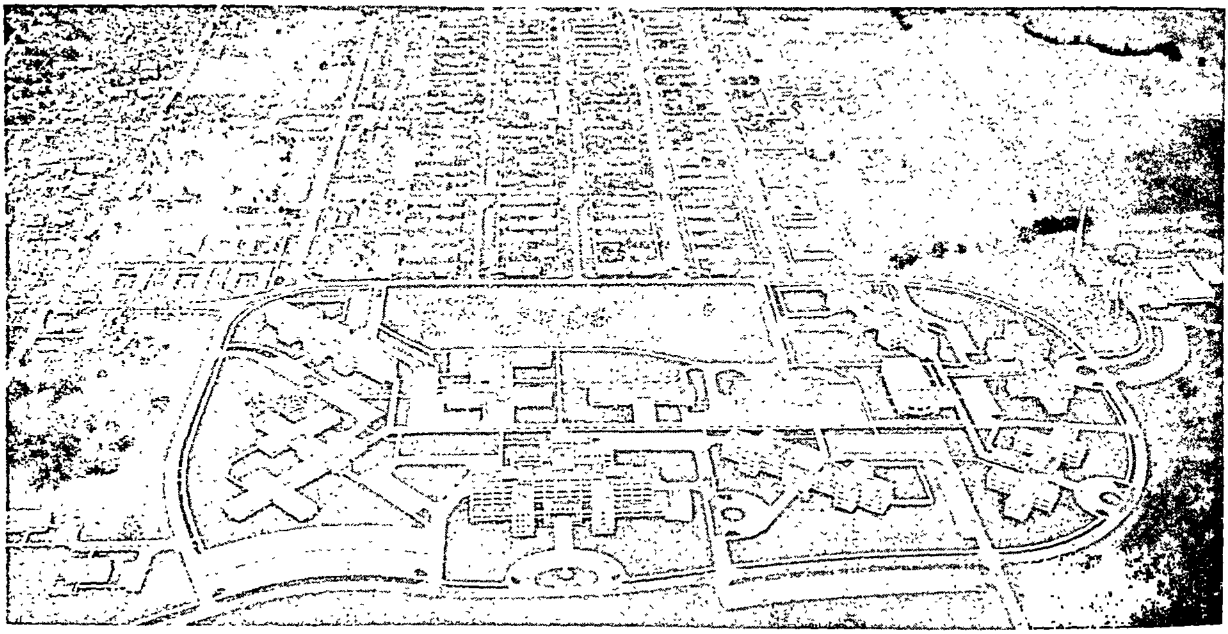
Capt. Thomas M. Foley Jr., M. C., was placed on the retired list on Sept. 1, after completing more than 20 years' active service.

VETERANS ADMINISTRATION

Proposed Neuropsychiatric Hospital at Brecksville, Ohio.—The VA announced Sept. 19 that bids will be accepted up until Nov. 4 for the construction of an estimated $20,500,000 veterans' hospital at Brecksville, Ohio. Aside from the buildings to be constructed, the project includes roads, walks, drainage, landscaping, grading, and wrecking and removal of certain existing structures. In general, the buildings will have concrete and steel frames, reinforced concrete foundations and floors, and exterior brick and masonry walls with stone trim and built-up roofs. Specifications are available from the Director, Design Service, Veterans Administration, Munitions Building, Washington 25, D. C.

The Sixtieth Hospital Since World War II.—The Veterans Administration dedicated a new 1,011-bed hospital for neuropsychiatric patients on Aug. 24, at Topeka, Kan. This, the 60th VA hospital built since World War II, replaces the temporary structures built for the Army in 1943 and later turned over to the Veterans Administration. The new hospital is on Gage Boulevard, three miles from the center of Topeka, on a site of about 150 acres. The hospital proper comprises about 20 buildings of reinforced concrete, with brick facing. The cost of construction approximated 20 million dollars. It will be staffed by about 1,150 employees. Among the speakers at the dedication were Dr. Karl A. Menninger of Topeka and Dr. William S. Middleton, VA chief medical director. The U. S. Army Band from Fort Riley, Kansas, provided music, and Mr. David Neiswanger, chairman, Executive Committee, Menninger Foundation, was master of ceremonies.

Personal.—Dr. Edward F. Zimmerman, director, professional services, VA hospital, Coral Gables, Fla., has been appointed manager of the West Side VA Hospital in Chicago, succeeding Dr. Lee H. Schlesinger, who was appointed VA area medical director at Columbus, Ohio. The West Side hospital is a 495-bed facility for general medical and surgical patients. Dr. Louis B. Newman, chief, physical medicine and rehabilitation service, VA Research Hospital, Chicago, has been presented the agency's Meritorious Service award. Dr. Newman was cited for outstanding service in organizing the research hospital's physical medicine and rehabilitation service and the VA center for rehabilitation of blinded veterans at the Hines, Ill., VA Hospital. Dr. Newman is president of the American Academy of Physical Medicine and Rehabilitation. Dr. A. W. Kruger, formerly manager of the Brooklyn, N. Y., VA Hospital, has resigned from the Veterans Administration to accept the post of consultant on health services to the National Committee on Aging of the National Social Welfare Assembly, 345 E. 46th St., New York City.



Veterans Administration Hospital, Topeka, Kan.

PUBLIC HEALTH SERVICE

Research Grants Awarded in July and August.—Research grants and fellowships totaling $42,665,767 were awarded during the months of July and

August by the National Institutes of Health, Bethesda, Md. In all, 2,793 grants were made to 489 institutions in 48 states, the District of Columbia, 2 territories, and 12 foreign countries. More than half of the money went for the support of research projects concerned with allergy, infectious diseases, heart disorders, and various basic problems in the medical and biological sciences. About one-third of the total number of grants were for new projects, of which 224 are in the field of biological sciences basic to medicine.

Two and One-half Billion Dollars Spent on Hospital Construction.—In a publication on the nation's health facilities, just issued by the Public Health Service, is a summary of the Hill-Burton program up to Jan. 1, 1958. During the first 10 years of the program, 3,047 projects—general hospitals, nursing homes, diagnostic and treatment centers, rehabilitation facilities, public health centers, and state health laboratories—were approved for construction. Of the total cost of 2.5 billion dollars, the state and local share was nearly 1.7 billion. The number of people in the United States without ready access to general hospitals has dropped from 10,000,000 to 2,800,000 since 1948, the Public Health Service reported.

More Than 9,000 Grants in One Year.—The National Institutes of Health, Bethesda, Md., awarded 9,534 grants for research, training, and construction in nonfederal institutions during the fiscal year ended June 30. Of the total, $136,112,014, more than two-thirds—$99,480,968—went to support 7,028 research projects concerned with major diseases and problems in the medical and biological sciences. The grants were made to 699 institutions in 48 states, the District of Columbia, 2 territories, and 28 foreign countries. Grants to help build, equip, or expand 177 research facilities, totaling $30,200,095, were awarded on a matching basis to 134 institutions throughout the country. Research fellowships totaling $6,430,951 were awarded to 2,329 fellows. Eighty-four United States scientists were awarded fellowships for study abroad, while 16 scientists from other countries received fellowships for study in outstanding institutions in the United States.

Grant Support for Training in Psychiatry.—The National Institute of Mental Health is offering grant support for a training program for general practitioners and other physicians engaged in the practice of medicine other than psychiatry. Funds are available during the current year (fiscal year 1959) and training institutions may submit applications at any time. The program has two purposes:

1. To foster the development of postgraduate training in psychiatry for practitioners who wish to increase their psychiatric knowledge and skills in order to be able to deal more effectively with the emotional aspects of illness generally and to play a more effective role in the treatment and prevention of mental illness. These courses will be designed for the physician who plans to continue practicing in his own field.

Grant support is being offered to medical schools, hospitals, clinics, and medical and psychiatric societies for the development and expansion of such postgraduate training in the form of courses, institutes, and seminars. This support does not include fees, subsistence, or travel for the physicians who attend.

Support of this type of training may be for a particular professional group over a given period, or for training offered regularly as part of the postgraduate curriculum of a medical school, hospital, or clinic, or as part of the educational program of a medical or psychiatric society.

Physicians interested in obtaining this type of training should apply to medical schools, hospitals, clinics, and medical or psychiatric societies which have, or are developing, such training opportunities.

2. To provide support at an adequate level for psychiatric residency training for physicians in practice who wish to become psychiatrists. Training stipends up to a maximum of $12,000 a year are available. The level of payment will be determined by the training institutions who will also make the award to the individual physicians. The National Institute of Mental Health will make awards of grants for this purpose to training institutions and not to individuals.

Physicians interested in support for this type of training should apply to training institutions which are approved for psychiatric residency training.

Inquiries about the program should be sent to Dr. Seymour D. Vestermark, Chief, Training Branch, National Institute of Mental Health, Bethesda 14, Md.

SELECTIVE SERVICE

Physical Examination of Physicians for the Armed Forces.—The director of the Selective Service System, Lewis B. Hershey, issued the following operations bulletin on Sept. 22.

1. It is currently reported that too few physicians are volunteering for active duty and residency programs to meet service requirements.

2. If the present trend continues, the Selective Service System will be called upon to deliver physicians on a special call. Local boards will be expected, in anticipation of a possible special call for physicians (but not dentists), to proceed with the physical examination of all physicians who are in class I-A or class I-A-O and have not been examined or who are in class IV-F under the provisions of section 1622.44 (a) of the regulations.

3. Operations Bulletin no. 181, issued Aug. 19, 1957, on the subject "Postponement of Armed Forces Physical Examination and Induction of Physicians and Dentists," is being amended to discontinue the postponement of the examination and induction of physicians.

4. For the purposes of this bulletin a physician is any registrant who has received the degree of bachelor of medicine or doctor of medicine.

DEATHS

Ahroon, Carl Richard Jr. Ⓜ Bloomington, Ill.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1932; veteran of World War II; associated with St. Joseph's and Mennonite hospitals in Bloomington and Brokaw Hospital in Normal, where he died Aug. 25, aged 53, of coronary artery disease.

Ausban, Henley Brown Ⓜ Doyle, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1912; died July 19, aged 79.

Baldwin, Arthur Kirby Ⓜ Long Beach, Calif.; born in Berwick, Ill., July 12, 1888; Rush Medical College, Chicago, 1916; certified by the National Board of Medical Examiners; enlisted in the Army and served with the American Occupational Forces in Siberia in 1919 and 1920; member of the American Society of Anesthesiologists and the Illinois Society of Anesthesiologists; served four times as president of the Green County (Ill.) Medical Society; the Illinois State Medical Society selected him as "General Practitioner for 1958"; practiced in Carrollton, Ill., where he was associated with Carrollton Hospital; died in the Seaside Memorial Hospital May 12, aged 69, of carcinoma of the liver.

Bennett, Marion Horton Ⓜ Big Spring, Texas; Tulane University School of Medicine, New Orleans, 1921; veteran of World War I; chief of staff, Howard County Hospital Foundation; died Aug. 25, aged 63, of ventricular fibrillation.

Booher, James Mathew, Chicago; Kentucky University Medical Department, Louisville, 1905; died in the Manteno (Ill.) State Hospital May 12, aged 78.

Bowman, James Luther Ⓜ Montgomery, Ala.; University of Virginia Department of Medicine, Charlottesville, 1897; served as secretary-treasurer of the Montgomery County Medical Society; veteran of World War I; formerly county health officer; for many years assistant head of the Montgomery County Health Department; died Aug. 24, aged 84.

Calkins, Irving Romaro Ⓜ Springfield, Mass.; Baltimore Medical College, 1896; died Aug. 26, aged 82, of cerebral hemorrhage and mitral stenosis.

Case, Frank William, Cincinnati; Miami Medical College, Cincinnati, 1907; member of the Ohio State Medical Association; served as resident physician at the Christ Hospital where he died Aug. 25, aged 76.

Chalfant, Estalee Martha, Shinnston, W. Va.; Illinois Medical College, Chicago, 1904; American College of Medicine and Surgery, Chicago, 1905; died in Clarksburg Aug. 19, aged 89.

Dahlstrom, Arthur William, Albuquerque, N. M.; Marquette University School of Medicine, Milwaukee, 1916; member of the American Trudeau Society; joined the U. S. Bureau of Indian Affairs in 1935; served as special physician at large for the Indian Service, and as superintendent of the Indian Sanitarium; died Aug. 26, aged 68, of bilateral subdural hematoma and arteriosclerosis.

Daley, Thomas Robert, Oakland, Calif.; University of Wisconsin Medical School, Madison, 1951; interned at the Highland-Alameda County Hospital, where he served a residency; served a residency at the Samuel Merritt Hospital in Oakland and the Herrick Memorial Hospital in Berkeley; associated with the Veterans Administration Hospital; died Aug. 30, aged 33, in an automobile accident near Winters.

Ekstrom, John E., Chicago; Rush Medical College, Chicago, 1909; for many years on the staff of the Ravenswood Hospital; died in the Burnham City Hospital in Champaign Aug. 24, aged 75.

Gaberman, Peter Ⓜ Los Angeles; born in Odessa, Russia, Feb. 28, 1904; University of Illinois College of Medicine, Chicago, 1928; formerly practiced in Chicago, where he was associate professor of medicine at the Chicago Medical School, and on the staffs of the Cook County and Mount Sinai hospitals; veteran of World War II; member of the Illinois State Medical Society and the American College of Cardiology; specialist certified by the American Board of Internal Medicine; died in Cedars of Lebanon Hospital Sept. 7, aged 54, of acute coronary thrombosis with myocardial infarction.

Gault, Edwin Sartain Ⓜ Philadelphia; born in Philadelphia Dec. 23, 1893; Hahnemann Medical College and Hospital of Philadelphia, 1920; on the faculty of Temple University School of Medicine; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; fellow of the College of American Pathologists; consultant for the U. S. Public Health Service; joint author of "Essen-

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Ⓜ Indicates Member of the American Medical Association.

tials of Pathology"; associated with Episcopal Hospital and the Temple University Hospital, where he died Sept. 1, aged 64.

Goff, William Hunter Ⓜ Rockford, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1935; served as health officer of Coosa County; died July 15, aged 50, of coronary occlusion.

Grant, John Joseph Ⓜ Freeport, Ill.; University and Bellevue Hospital Medical College, New York City, 1911; past-president of the Stephenson County Medical Society; fellow of the International College of Surgeons and the American College of Surgeons; veteran of World War I; served as president of the medical staff at St. Francis Hospital, where he died Aug. 23, aged 72.

Gray, Robert, Philadelphia; Temple University School of Medicine, Philadelphia, 1912; died May 1, aged 79, of pulmonary embolism and rheumatic heart disease.

Greene, George A., Yates Center, Kan. (licensed in Kansas in 1901); died in the Newton Memorial Hospital, Winfield, Aug. 22, aged 85, of diabetes mellitus, bronchopneumonia, and congestive heart failure.

Hardesty, Henry O. Ⓜ Jennings, Kan.; Kansas Medical College, Topeka, 1900; served overseas during World War I; died Aug. 17, aged 88, of coronary artery disease.

Heyroth, Francis Farnham Ⓜ Cincinnati; University of Cincinnati College of Medicine, 1925; associate professor of industrial health and biological chemistry at his alma mater, where he received his Ph.D. in 1929; retired as assistant director of the Kettering Laboratory at his alma mater; formerly vice president of the Cincinnati Board of Health; a member of the National Advisory Dental Research Council of the U. S. Public Health Service; a member of the American Chemical Society which in 1953 presented him with its fourth annual Eminent Chemist Award; died Aug. 18, aged 63, of cerebral hemorrhage and hypertension.

Hill, Ralph Lee, Alexander, Va.; born July 6, 1876; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1900; an associate member of the American Medical Association; past-president of the Pennsylvania Psychiatric Society; specialist certified by the American Board of Psychiatry and Neurology; past-president of the Berks County (Pa.) Medical Society and the Pennsylvania Psychiatric Society; member of the American Psychiatric Association; veteran of World War I; medical superintendent of the Allegheny County Home and Hospital in Woodville, Pa., from 1914 to 1927 and the Wernersville (Pa.) State Hospital from 1927 to 1954; in 1940 received an honorary doctor of science degree from Franklin and Marshall College, Lancaster, Pa.; died in the Jamestown (N. Y.) Hospital Aug. 22, aged 82, of uremia.

Howell, Asa, Uvalde, Texas; University of the South Medical Department, Sewanee, Tenn., 1899; died May 19, aged 85.

Hurd, Annah Ⓜ Minneapolis; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1900; died July 24, aged 86.

Hurd, Laura B., San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1897; served on the staff of the Hahnemann Hospital, where she died Aug. 31, aged 88, of pulmonary embolism.

Hydrick, John Lee, Phoenix, Ariz.; born Oct. 25, 1888; Jefferson Medical College of Philadelphia, 1915; field representative of the Rockefeller Foundation in New York City from 1916 to 1953 and worked extensively in South American countries; a member of the World Health Organization expert advisory panel on health education of the public, and received decorations from the Netherlands, Peru, and Ecuador governments; on Sept. 1, 1956 was appointed acting city health director and the following year became co-director of the city and county health department; in 1954 received an honorary degree of doctor of law from Wofford College, Spartanburg, S. C.; died Aug. 29, aged 69.

Ingarra, Thomas Salvatore Ⓜ Kingston, N. Y.; New York University College of Medicine, New York City, 1949; fellow of the American Society of Anesthesiologists; in 1955 served in the Army, stationed at Fort Riley, Kan., as chief of the department of anesthesiology until 1957; on the staffs of the Kingston Hospital and the Benedictine Hospital, where he died Aug. 28, aged 40, of lymphosarcomatosis.

Kauffman, Kalman L. Ⓜ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1938; died Aug. 16, aged 46.

Kavaler, Samuel, Brooklyn; Long Island College Hospital, Brooklyn, 1922; member of the Medical Society of the State of New York; died Aug. 1, aged 64, of coronary occlusion.

Kavle, Carleton Porter Ⓜ Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1932; also a graduate in pharmacy; president of the Niagara County Medical Society; associated with Mount St. Mary's Hospital and the Memorial Hospital, where he died Aug. 24, aged 57, of hepatitis.

Key, William Frank Ⓜ Fort Worth, Texas; Baylor University College of Medicine, Dallas, 1919; died Aug. 23, aged 67, of arteriosclerotic heart disease.

Mackey, Robert Bliss, Springville, Pa.; Medico-Chirurgical College of Philadelphia, 1908; veteran of World War I; died Aug. 25, aged 74, of rupture of an aneurysm of the abdominal aorta.

McDonald, John Thomas Ⓢ Monroe, Tenn.; University of Nashville Medical Department, 1900; died in the Lady Ann Hospital in Livingston July 24, aged 90.

McGarry, Thomas Francis, Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1921; associated with the Rutland Hospital; died Aug. 19, aged 61, of myocarditis.

McLean, Hugh Clayton, San Diego, Calif.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1903; served in the Canadian Army during World War I; died Aug. 14, aged 90, of arteriosclerosis.

Marsh, Charles Lafayette Ⓢ Valley, Neb.; University of Nebraska College of Medicine, Omaha, 1941; member of the American Academy of General Practice; for 15 years a member of the Selective Service System; served on the District 33 board of education; on the staff of the Nebraska Methodist Hospital in Omaha; died in Portland, Ore., Aug. 26, aged 45, of fatty degeneration of the liver.

Mentzer, John F. Ⓢ Ephrata, Pa.; Jefferson Medical College of Philadelphia, 1882; on the staff of the Ephrata Community Hospital; for many years trustee of the Harrisburg (Pa.) State Hospital; served as a member of the board of health, school director, postmaster, deputy coroner, and county treasurer; chairman of the board of directors and past-president of the Ephrata Farmers National Bank; died Aug. 28, aged 96, of cerebral thrombosis.

Michaelis, Lucia Ⓢ Shaker Heights, Ohio; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1922; died in the Mount Sinai Hospital Aug. 19, aged 61.

Monk, Louis, New York City; Fordham University School of Medicine, New York City, 1911; an associate member of the American Medical Association; died in the Royal Hospital July 25, aged 81, of coronary thrombosis and arteriosclerosis.

Morris, Benjamin Franklin, Paducah, Ky.; Louisville (Ky.) Medical College, 1898; also a druggist; died in Riverside Hospital, Aug. 16, aged 81, of cerebral hemorrhage.

Morris, Elliston Joseph, St. Davids, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1886; an associate member of the American Medical Association; for many years associated with the Episcopal Hospital in Philadelphia; died in Devon Aug. 31, aged 95.

Muller, Lula Johnson Power, Montclair, N. J.; University of Virginia Department of Medicine, Charlottesville, 1946; interned at the Lenox Hill Hospital in New York City and served a residency at St. Luke's Hospital in New York City; associated with Mountainside Hospital; died near Susanville, Calif, Aug. 28, aged 37, of injuries received in an automobile accident.

Murphy, Leonard J. Ⓢ Chicago; Northwestern University Medical School, Chicago, 1916; veteran of World War I; retired in 1956 as director of the Murphy Clinical and X-Ray Laboratory; died in the Swedish Covenant Hospital Aug. 29, aged 76, of diabetes mellitus and arteriosclerosis.

Nelson, Cedric Henry Ⓢ Billings, Mont.; University of Nebraska College of Medicine, Omaha, 1923; past president of Yellowstone Valley Medical Society; served as past-president and vice president of the state board of medical examiners; past chairman of District 2 School Board; veteran of World War I; since 1951 health officer; a staff member at St. Vincent and Deaconess hospitals; died Aug. 20, aged 61, of complications following surgery for aortic aneurysm three months previously.

Noyes, Harriett Louella Ⓢ Rumford, Maine; College of Physicians and Surgeons, Boston, 1911; died in the Rumford Community Hospital July 18, aged 69, of sarcoma.

Parker, Rupert Merrill Ⓢ Moline, Ill.; Northwestern University Medical School, Chicago, 1896; formerly practiced in Chicago; died in the Lutheran Hospital Aug. 28, aged 88, of injuries received in an automobile accident.

Pennell, Franklin Howard Ⓢ Fostoria, Ohio; Ohio State University College of Medicine, 1920; associated with Fostoria City Hospital; died Aug. 17, aged 63, of coronary occlusion.

Poppen, Joseph A. Ⓢ Burr Oak, Kan.; St. Louis University School of Medicine, 1908; served for many years on school boards in both Ionia and Burr Oak; at one time superintendent of schools at Glen Elder; on the staffs of Beloit (Wis.) Community Hospital and St. Joseph's Hospital, Concordia, where he died Aug. 16, aged 82, of cerebral hemorrhage.

Reed, Wendell Phillips Ⓢ Buffalo; University of Buffalo School of Medicine, 1932; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; consulting urologist Wyoming County Community Hospital, Warsaw, and Our Lady of Victory Hospital, Lackawanna; past-president of the medical staff, Millard Fillmore Hospital, where he died Aug. 20, aged 54.

Reeves, Emory West, Cotulla, Texas; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; veteran of World War I; died June 14, aged 79.

Rohr, Joseph Ⓜ New York City; University and Bellevue Hospital Medical College, New York City, 1908; died July 20, aged 76, of coronary artery disease.

Runge, Otto Ernst, Ridgewood, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1914; died July 30, aged 69, of carcinoma of the rectum with metastasis to the liver and lungs and diabetes mellitus.

Sappington, William Fulford Ⓜ Lieut., Colonel, U. S. Army, retired, Waco, Texas; University of Maryland School of Medicine, Baltimore, 1901; veteran of World Wars I & II; entered the medical corps of the U. S. Army in 1920; service member of the American Medical Association; retired March 31, 1942; died June 3, aged 79.

Schabinger, Charles, Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; also a graduate in pharmacy; an associate member of the American Medical Association; died Aug. 24, aged 86, of pneumonia and arteriosclerosis.

Schwartz, William H., Houston, Texas; Dunham Medical College, Chicago, 1902; Hering Medical College, Chicago, 1904; died in St. Luke's Hospital May 19, aged 81.

Seth, Raymond Ephraim Ⓜ Seattle; University of Minnesota Medical School, Minneapolis, 1929; member of the Industrial Medical Association; veteran of World War II; on the staff of the Swedish Hospital; died Aug. 24, aged 54, of a self-inflicted bullet wound in the head.

Slayton, Frederic Hosea, Wichita, Kan.; Rush Medical College, Chicago, 1901; served on the staff of the Wesley Hospital; died Aug. 14, aged 83, of heart disease.

Southard, Mabel Austin, Los Altos, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1900; died Aug. 5, aged 76, of coronary thrombosis.

Stout, Henry Isaiah Ⓜ Sherman, Texas; George Washington University School of Medicine, Washington, D. C., 1907; on the staff of the Wilson N. Jones Hospital; died Aug. 29, aged 74, of acute myocardial infarction and arteriosclerosis.

Thompson, Joseph Ⓜ Creedmoor, N. C.; Kentucky University Medical Department, Louisville, 1904; died Aug. 22, aged 76.

Tietze, Herman Christian, Edwardsville, Ill.; Bennett Medical College, Chicago, 1913; past-president of the Madison County Medical Society; veteran of World War I; died in the Veterans Administration Hospital, Jefferson Barracks, Mo., Aug. 24, aged 73.

Turner, Andrew Jackson Ⓜ Garnett, Kans.; Kansas City (Mo.) Medical College, 1902; veteran of the Spanish-American War and World War I; died Aug. 4, aged 79, of chronic brain syndrome and cerebral arteriosclerosis.

Underwood, Robert Alfred Ⓜ Delta, Colo.; College of Medical Evangelists, Loma Linda and Los Angeles, 1933; certified by the National Board of Medical Examiners; member of the American Academy of General Practice; at one time city physician in Lincoln, Nebr.; on the staff of the Delta Memorial Hospital; died Aug. 17, aged 55, of coronary thrombosis.

Vaughan, Merritt Carlton Ⓜ Buffalo; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1911; associated with Deaconess, Millard Fillmore, Sisters of Charity, and Lafayette General hospitals; died Aug. 22, aged 68, of bronchopneumonia.

Weinstein, Max Irving Ⓜ Methuen, Mass.; Middlesex College of Medicine and Surgery, Waltham, 1936; served during World War II; associated with Bon Secours Hospital in Methuen, Clover Hill Hospital in Lawrence and the Lawrence (Mass.) General Hospital where he died Aug. 15, aged 47, of coronary thrombosis.

Wood, William Ellege Ⓜ Elgin, Texas; University of Georgia Medical Department, Augusta, 1902; died Aug. 1, aged 78, of heart disease.

Yadkowsky, Emanuel Ⓜ Newark, N. J.; University and Bellevue Hospital Medical College, New York City, 1903; served on the staff of the Beth Israel Hospital, where he died Aug. 23, aged 74, of a heart attack.

Young, Harry Hopple, Robertsburg, W. Va.; Medical College of Ohio, Cincinnati, 1900; veteran of World War I; first director of the George Washington Life Insurance Company in Charleston; one of the founders of the original Charleston General Hospital; died in Charleston General Hospital Aug. 28, aged 80.

FOREIGN LETTERS

BRAZIL

Exfoliative Cytology of the Stomach.—Dr. Flavio San Juan compared the value of chymotrypsin lavage with the results of x-ray examination, gastroscopy, and estimation of gastric acidity in 82 patients (*O hospital* 53:513, 1958). The patients were divided into four groups: a control group of 20 with radiologically normal stomachs, 15 with peptic ulcers, 23 with benign nonulcerative lesions, and 24 with malignant neoplasms. In 77 patients (93.9%) the results of cytology were correct; in 3 (3.7%) they were inconclusive; and one patient gave a false-positive and another a false-negative result. The results of radiology were correct in 63 patients (76.8%), false-positive in 9 (11.0%), and inconclusive in 10 (12.2%). Gastroscopy, performed in 43 cases, gave correct results in 38 patients, or 88.4%. In the control group with normal stomachs the results of cytology, radiology, gastroscopy, and gastric acidity were always in complete agreement. In the group with benign gastric ulcers the results were correct in 100% of the cytological examinations, in 80% of the radiological examinations, and in 71.4% of the gastroscopies; but for the exact diagnosis, radiology had the first place, followed by gastroscopy. For the determination of the benign or malignant nature of the lesion, cytology was superior to other methods. Gastric acidity was the least valuable. Gastroscopy was the best method for diagnosing chronic gastitis in general, followed by cytology and gastric acidity as the best means of diagnosing extensive atrophic gastritis. Radiology was the best method for other types of benign lesions. In the investigation of the possibility of malignant transformation of benign lesions, cytology was the most accurate.

In the group with malignant neoplasms of the stomach, cytology gave correct information in 87.5%, followed by radiology (79.1%), and gastroscopy (76.9%). In this group cytology and radiology together gave the correct diagnosis in 91.7%, and when cytology, radiology, and gastroscopy were combined, a correct diagnosis resulted in 100%. In six patients in whom the diagnosis of cancer was made in an early stage, cytology gave correct information in all, radiology in 4, and gastroscopy, carried out in only three patients, gave one false-negative result. There was no correlation between the degree of malignancy and the cytological findings.

Broad-Spectrum Amebicide.—Amaral and Pires, (*O hospital* 54:75, 1958) treated a series of eight patients who were carriers of several species of intestinal amebas, including Entamoeba histolytica, with a new drug derived from phenantroline (preparation 11-925 C). After a seven-day treatment with 300 mg. taken three times a day, all amebas disappeared.

Hepatosplenomegaly in Children.—Dr. Denise Altenhein and co-workers of the São Paulo State University Hospital presented to the Associacão Paulista de Medicina a paper stressing the importance of the hepatosplenomegalic syndrome in children in diverse conditions with a certain pathogenic affinity. Icterus and anemia are frequent accompanying symptoms. In their series of 116 patients the abundance of signs, symptoms, and laboratory findings demonstrated the probable impossibility of making a diagnosis on the basis of hepatosplenomegaly alone, because such enlargements may be vascular, inflammatory, infiltrative, or tumoral. Anyway, it serves at least as a starting point for the diagnostic deductions. The patients were classified as having (1) diseases of the liver, including cirrhosis and malformations of the biliary ducts (32 patients); (2) diseases of the blood such as hemolytic anemias, leucemia, and reticuloendotheliosis (31 patients; (3) congenital syphilis (24 patients); (4) infections and parasitic infestations, including leishmaniasis and schistosomiasis (11 patients); and (5) vascular accidents such as thrombosis (4 patients). There were 14 cases of errors and omissions of diagnosis, including two patients with sympathoblastomas with metastasis in the liver.

FRANCE

Aortography.—P. Betoulières and co-workers (*Montpellier Médical*, vol. 52, no. 2, 1957) used a trocar with a short-bevel needle, a mandrel for obturation, and a sounding line fitting into a metallic conductor for aortography. As one passes the sounding line along the metallic guide in the trocar, an assistant injects a small quantity of a contrast medium to make sure of the exact location of the sounding line. The aortic tree may be made opaque by this method from the aortic arch to the iliac bifurcation. To visualize an arterial branch, bent sounding lines are used. The advantage of this method lies in the possibility of injecting the contrast medium at the de-

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The items in these letters are contributed by regular correspondents in the various foreign countries.

sired height and in the fact that a minimum of the medium is required. The technique presents no danger; it is safer than the usual method of aortic angiography.

Treatment of Drowning.—L. Fournier at the Concours Médical in March described a new treatment of drowning consisting of (1) parilaryngeal infiltration with a local anesthetic to stop spasm, (2) laryngeal intubation, and (3) precordial massage or intracardiac injection with epinephrine or arterenol.

Emergency Treatment of Corrosive Esophagitis.—Flottes and co-workers (*Annales d'oto-laryngologie*, March, 1958) treated a series of nine patients who had corrosive esophagitis with cortisone and ACTH. In each case a swallowed thread acted as a guide on which a sound could be passed. The thread was introduced through the nose and retained for at least one month or until cicatrization was complete. Thus alimentation was maintained without gastrostomy. This method permits the physician to follow the course of the cicatrization. Eight patients recovered without sequelae. The one failure was due to introducing the guiding thread too late.

Carcinogenesis.—In the *Bulletin de l'Association Française pour l'Etude du cancer* (vol. 44, no. 4) Lacassagne and co-workers reported a series of experiments comparing the cancerogenic action of cellophane, graphite, and mica. The authors found that sarcomas were produced in those rats in which a leaf of cellophane was wrapped around the kidney. In those with inclusions of mica and graphite no tumors developed, but a lamella of glass produced a fibrosarcoma.

Treponemic Antigens.—Vaisman and Hamelin (*Presse méd.* 66:1397, 1958) stated that the serodiagnosis of syphilis has been facilitated by new methods making use of treponemic antigens in contrast with classic tests which use lipidic reagents. Hemolytic reactions with Ritter's treponemic antigen are more sensitive and more specific than those with the lipidic reagents but are difficult to perform. Hemolytic reactions with pathogenic Treponema pallidum as antigen (Portnoy's and Magnuson's antigen) gave results approximating those obtained from the Treponema immobilization test. The antigen is very stable. The adhesion-disappearance reaction consists in adhesion to human erythrocytes of the treponemas sensitized by the specific antibody in the presence of a complement. The test is difficult to evaluate. The Treponema immobilization test is already widely used. The authors concluded that it is the best because of its high specificity and great sensitivity.

INDIA

Coronary Disease.—A study of coronary heart disease by Malhotra and Pathania (*Brit. M. J.* 2:528, 1958) does not support the commonly held view that it is less frequent in Eastern countries and that it is associated with a high fat intake. Data on 867 patients with coronary heart disease in the Punjab were collected from 3,054 patients with cardiac disease. Thus, coronary disease accounted for 28.4% of these. The maximum incidence of the disease was in the 50-to-59-year age group, which is a decade younger than the age group of maximum incidence in Western countries. In Western countries women suffer much less than men from coronary disease. The sex ratio in the literature varies from 1:4.2 to 1:6.6. In the Indian series the ratio was much the same, namely 1:6.7; yet in India women lead a comparatively sheltered and indoor type of life, and they are mostly vegetarians, nonsmokers, and teetotallers. The fat content of the diet taken by most of the Indian patients was low, compared with American and European standards; yet the incidence of coronary disease would appear to be of the same order. The authors found it difficult to believe that dietary fat could play any significant part in the causation of coronary disease. Their observations showed that vegetarians living on a low fat diet are no less likely to develop coronary disease than meat eaters. Tobacco did not appear to be a factor, as one half the patients were Sikhs, whose religion forbids smoking. They were no less susceptible to coronary disease than Hindus, whose religion does not proscribe it. Obesity has long been recognized as an associated factor in coronary disease. This was found to be so only in Indian women.

Patients were classified according to their socioeconomic status. The incidence of coronary disease was highest in the middle classes, intermediate in the upper, and least in the lower classes. As in Western countries those leading a "chairborne" life showed a higher incidence than those earning their living by hard physical work. The condition was far more common in the urban than in the rural population, but interpretation of the data obtained was difficult because the rural patient, unlike the town dweller, seeks medical advice only when he is severely disabled. A genetic factor plays a prominent part in the cause of coronary disease, according to the authors, who found a family history of ischemic heart disease in 33% of the patients. As in patients seen in the West, it was found that hypertension and diabetes were commonly associated with coronary disease.

Osteoarticular Lesions in Smallpox.—K. S. Bose (*J. Indian M. A.* 31:4 [Aug. 16] 1958) stated that, although the incidence of osteoarticular lesions after smallpox is small, he observed 12 such cases in one year; 9 of them occurred in the subacute stage of the smallpox attack two to six months after desquamation of scabs, and 3 occurred 1 to 12 years after the attack. Those observed in the subacute stage resembled pyogenic arthritis and osteomyelitis. Affection of the elbow and bilateral involvement were common features. One patient developed a sinus formation followed by bony ankylosis. The radiologic appearance resembled a chronic pyogenic osteomyelitis, but the ends of bones were also involved. Small cystic changes and subperiosteal bone formation without sequestrums or marked necrosis and new bone formation were characteristic. Both the epiphysis and metaphysis were involved along with joints. One patient, however, showed isolated bone involvement, while sequestrums and typical changes of osteomyelitis were seen in the patient who had developed a sinus. Joint changes consisted of erosion of articular ends, periarticular soft tissue swelling, and increase in joint spaces.

In two late cases, growth at the involved joint was interfered with, although movement was preserved to a great extent. In late cases in general the joint space was decreased with deformed articular ends and unequal growth causing valgus deformity. Microscopic examination of aspirated material and biopsy of synovial membrane, muscle, and capsule showed a few degenerated cells but no microorganisms. Culture of the aspirated material was also sterile. On microscopic examination, the bones showed changes resembling those of osteitis fibrosa. Pure bone lesions healed after curettage and scraping. Partial excision of the elbow joint was performed on two patients, one of whom did well. One patient who had developed genu valgum was subjected to a corrective osteotomy and obtained a good result. Sequestrectomy was performed on the patient with sinus formation. In five patients with comparatively early changes and swollen elbow joints, the joints were immobilized in plaster. A gradual improvement in movement of the joints with no recurrence was met with, although the movements of the elbow were not restored completely in any case.

Mental Deficiency.—Manchanda and Sagar (*Indian J. Child Health* 7:7 [July] 1958) reviewed 200 cases of mental deficiency in children and found that idiopathic mental deficiency accounted for 71.5%. About 50% of the rest gave a history of meningitis or encephalitis. Of the 200 children, 140 belonged to the poorer class; 77 came from rural areas, and the rest came from cities. The number belonging to the age group 0 to 1 was smallest, and about 67% were aged 2 to 5 years; 42.5% of the children were either first or second born and most of these were in the idiopathic group. Of the 69 mothers above 30 years of age, 26 were mothers of children with mongolism; thus 74.3% mothers of the 35 with mongolism were above 30 years of age. There were 184 children born full term, 15 were premature, and 1 was postmature. Thus prematurity was not a major factor in the causation of mental deficiency. A history of difficult labor was available in 44 cases, and 28 mothers had had some illness during the antenatal period, the commonest being fever of short duration. One had jaundice due to infectious hepatitis. One mother confessed attempted abortion. A family history of mental illness and epilepsy was obtained from only four patients, and none gave a history of consanguinity. Nineteen of the children had difficulty in breathing and cyanosis soon after birth; 11 of these had cerebral palsy, 6 had jaundice in the first week, and 6 had epileptiform fits in the neonatal period. Trauma, infection, and malnutrition occurred after birth in 31. The presence of mental deficiency was suspected by the parents of only 25% of the children below the age of 2 years. Most were brought to the doctor for some physical defect such as rickets, flat feet, or general debility. The idiopathic group included those with mongolism and microcephalics. This series did not contain a single case of congenital syphilis, although serologic tests for syphilis were made in all suspected cases. According to mental tests, 77 were idiots, 110 imbeciles, and 23 feeble minded; 107 were difficult and unmanageable.

Clinical Trials with Chloramphenicol.—S. M. Merchant (*Indian J. Child Health* 7:8 [Aug.] 1958) gave chloramphenicol monostearoylglycolate-3 to 77 children with various infections. The ester was found to give the same blood level as that obtained by administration of free chloramphenicol in animal experiments and in tests on human beings. The series included 29 patients with whooping cough, 21 with enteric infection, 16 with bacillary dysentery, and 11 with neonatal infection. Twenty-one of the 29 with whooping cough obtained excellent results, but in 3 there was no improvement; 4 developed mild diarrhea which did not call for withdrawal of the drug. All but two of those with enteric infection did well, the temperature returning to normal within 72 hours; four developed slight diarrhea. All of those with bacillary dysentery responded well, both the fever and diarrhea being controlled within 24 hours. Eleven neonatal patients with undiagnosed infection responded well.

Neomycin-Sulfadimidin for Infant Diarrhea.—Gupta and Pohowally (*Indian J. Child Health* 7:8 [Aug. 18] 1958) treated 40 unselected children under the age of 2 years for diarrhea with a suspension containing neomycin, sulfadimidin, pectin, and kaolin, and the results were compared with those obtained in a control group of 60 children also under 2 years of age who received sulfadiazine, chloramphenicol, or streptomycin, singly or in combination. Patients were considered cured when the number of stools was less than five in 24 hours, consistency was solid or semisolid, no blood or mucus was seen on macroscopic examination of stools, and microscopically there was no blood or mucus and less than two pus cells per high-power field. There was no difference in the incidence of diarrhea in breast fed infants and those reared on mixed or artificial feeding. In each group 55% obtained a five-day cure. Stool culture showed a predominance of Escherichia coli, and these patients responded well to the neomycin-sulfadimidin therapy. This combination, however, did not seem to have any advantage over the standard therapy for diarrhea.

Liver Function Tests.—K. H. Nair and co-workers (*J. A. Physicians of India* 6:3 [July] 1958) studied 52 patients with cirrhosis of the liver, congestive splenomegaly, hepatitis, and carcinoma of the liver in persons above the age of 12 years. The maximum age incidence was between 20 and 40 years. About 44 complained of anorexia and pain in the abdomen. Ascites was present in 29. The enlargement of liver varied from just palpable to five fingerbreadths below the costal margin. The spleen was also enlarged in about 10, and it was noticed that in all patients with associated splenomegaly, ascites was present. There was no relation between the size of the liver and the presence of ascites. The thymol turbidity test varied from 2 to 10 units and was not related to the degree of enlargement of the liver and presence or absence of ascites. In patients with a raised icterus index and a direct immediate Van den Bergh's reaction, it was above 7 units. The serum protein level varied from 6.0 to 10.2 Gm. per 100 ml., and variation in total protein levels were not related to the thymol turbidity test, Van den Bergh's reaction, and icterus index. The total serum protein levels were lowered in only three patients, but there was a change in the normal albumin-globulin ratio, the latter being raised. This ratio was not normal in any patient and varied from 1:1 to 1:3. The alkaline phosphatase estimation gave normal values, while the protein content of the ascitic fluid was found to be below 1.5 Gm. per 100 ml. The Kahn reaction was positive in 12 patients. The authors suggested that in addition to protein deficiency, exposure to infection and the stress and strain of life are probable etiological factors. Most of the patients with a high serum protein level and a diminished albumin-globulin ratio were highly toxic and even cholemic, the degree of cholemia being related to the increase in globulin. The case fatality rate was also higher in patients with a high globulin level.

Complications of Measles.—Silhar and Maru (*Indian J. Child Health* 7:7 [July] 1958) reported a series of 315 patients who had measles with complications. The maximum age incidence was seen in children between 1 and 2 years old, the youngest patient in the series being 4 months old; 80% were under 4. In this series 50% had respiratory complications; 30% had alimentary complications; and 6% had central nervous system complications. Otitis media, supposed to be a common complication of measles, was comparatively rare (less than 3%). Respiratory complications included bronchitis, bronchiolitis, bronchopneumonia, upper respiratory tract infection, and reactivation of pulmonary tuberculosis. Most of these occurred within the first 10 days of appearance of the rash. All the patients with bronchiolitis were under 18 months of age. While a combination of penicillin and streptomycin was found useful in the treatment of these complications, adequate doses of sulfonamides given in time were also effective. The main alimentary complications were enteritis, gastroenteritis, and dysentery. Stool examination was uniformly negative. Sulfadiazine, streptomycin, and chloramphenicol were useful in the treatment of these complications. The central nervous system complications included 14 patients with encephalitis, 3 with tuberculous meningitis, and 1 with a flare-up of febrile convulsions; 11 cases of encephalitis occurred within two weeks of appearance of the rash, 1 after three weeks of appearance of the rash, while in 2 it preceded the appearance of the rash. Other complications included skin infection in 10 and eye and ear infection in 10. As sequelas of measles, anemia developed in 14 patients and malnutrition in 8. The largest number of patients in this series came from treatment in the second week; 90% had had no treatment in the preeruptive or eruptive phase. There were three deaths, all occurring within 48 hours of hospitalization, two patients dying of encephalitis and one of tuberculous meningitis.

Effect of Soluseptasine on Blood Sugar.—Bhattacharya and Goswami (*Antiseptic* 55:7 [July] 1958) studied the effect of intravenous injections of Soluseptasine (a sulfonamide) on the blood sugar level of 50 men in hospital. Patients with liver, kidney, and heart diseases were excluded. A preliminary glucose tolerance test was done in all patients, four days later fasting blood samples were taken, and then 5 cc. of 20% Soluseptasine was given intravenously; 50 Gm. of glucose was given orally after the injection, and blood samples were collected every half hour for two and one-half hours and after three and one-half hours. Urine was also collected at half-hourly intervals and examined for sugar. Some urine samples in 13 patients showed sugar. The blood-sugar lowering effect of Soluseptasine was evident in 30 minutes and reached its maximum in one and one-half to two and one-half hours. Four patients showed signs of hypoglycemia, and two had only glycosuria. The authors suggested that a liberal supply of carbohydrates should be given to patients who are receiving sulfonamides intravenously.

Sanitary Engineering.—The government agreed to the payment of stipends, fees, and other expenses to sanitary engineers and auxiliary sanitary engineering personnel for training in the implementation of a national water supply and plans for sanitation. In the year 1958-1959 such stipends will be given to 45 trainees for training as engineers for a period of 10 months. Those taking the course will be eligible for the stipends from the date they join the course. Another group of 150 engineers will get stipends for a three-year course at the All-India Institute of Hygiene and Public Health, Calcutta, and the Engineering Colleges at Roorkee and Guindy, where stipends will also be given to 180 engineering subordinates for a three-year course. Other personnel who will be receiving assistance include 100 waterworks operators and 50 sanitary inspectors to be given short courses at various regional centers.

Tuberculosis.—In an address before the Tuberculosis Association of Madras in July, the minister of health said that about 500,000 persons died every year of tuberculosis and 2,500,000 were suffering from it at any given time in this country. The health panel of the planning commission had estimated that the needs of the country in this field at the start of the first five-year plan were 4,000 tuberculosis clinics, 500,000 beds, 15,000 physicians, 50,000 nurses, and 12,000 home visitors. The gap between the needs and the available resources could be seen from the fact that there were only 160 tuberculosis clinics and 7,000 hospital beds at the beginning of their planning. While it was necessary to increase these facilities, most of the emphasis must be on prevention rather than cure, on domiciliary services rather than hospital care, and on early diagnosis rather than on surgery. The transmission of the infection must be prevented through isolation at home as well as hospital treatment. There is a great need for voluntary assistance in this sphere. The Tuberculosis Association of India, a voluntary organization, has done a great service in this connection. Public interest has been awakened to the importance of the problem.

Epidemic Encephalitis.—In Nagpur, with a population of 500,000, between June 26 and July 4 there were 20 children between 1 and 10 years of age admitted to hospital (*Indian Journal of Child Health*, Aug., 1958). All 20 died. Some gave a history of acute diarrhea, vomiting, dehydration, and convulsions; others had hyperpyrexia, vomiting, and convulsions. Death occurred within 24 hours of admission. Children with this disease admitted between July 4 and 8 were not as sick, and some survived. All of those admitted after July 8 survived. The admission rate then declined rapidly. Similar cases were also seen in private practice, but their mortality was low, one death being reported in 24 cases. Physicians reported having seen such patients almost every year at this season, although their number was smaller and the treatment was mostly symptomatic. At the hospital, these children received chloramphenicol routinely, and those that survived could be discharged on the third day. The only neurological sign in these patients was muscular rigidity of the neck and back. The spinal fluid showed no definite abnormality, and blood, stool, and urine specimens and throat swabs revealed no causal organism on culture. The cause could be a virus. No residual paralysis or any other neurological sign was seen in the survivors.

UNITED KINGDOM

Triamcinolone.—A clinical trial with a new Δ^1 cortisone analog containing fluorine (triamcinolone) was made by Hart and coworkers (*Lancet* 2:495, 1958) in 30 patients with rheumatoid arthritis, systemic lupus erythematosus, and ulcerative colitis to compare it with prednisolone and ascertain its side-effects, particularly those affecting the stomach. The dose of the drug was four-fifths that of the prednisolone given previously. All the patients with rheumatoid arthritis kept daily records of pain, stiffness, the number of analgesic tablets needed daily, and the time it took to loosen up in the morning on rising. Observations were also made every three or four days of joint tenderness in the fingers, finger swelling, and strength of grip. The sedimentation rate was determined weekly. Of the 25 patients with rheumatoid arthritis 11 improved, but in only 5 was improvement more than slight; 11 preferred triamcinolone to prednisolone. Of seven patients who complained of dyspepsia while taking prednisolone, three improved when they changed to triamcinolone and three were made worse by the change. The condition of the patients with lupus erythematosus and ulcerative colitis was unchanged after being given triamcinolone.

The authors concluded that triamcinolone is another effective steroid with no particular therapeutic virtue, except that it does not cause salt and water retention. One of the side-effects noted was postprandial flushing. Wells gave the drug to 14 patients, previously maintained on therapy with prednisolone, for various conditions (*Lancet* 2:498, 1958). Of nine with no previous history of joint symptoms, three developed arthritis, which in two resembled acute rheumatoid arthritis. He suggested that the change of therapy from one steroid to another was responsible. Apart from this episode, he considered the therapeutic effectiveness of triamcinolone to be superior to that of prednisolone.

CORRESPONDENCE

TOXICITY AND ANTIPYRETIC ACTIVITY OF SALICYLAMIDE AND ASPIRIN

To the Editor:—In The Journal of Aug. 9, 1958, page 1821, the article "Antipyretic Effectiveness of Salicylamide and Acetylsalicylic Acid in Infants" by Vignec and Gasparik contains a number of misleading statements. These become even more disturbing after the reading of their references and the pertinent literature.

The authors say: "Actually, if one can extrapolate from the observed LD_{50} for mice . . . it is difficult to see how a child might ingest dangerous amounts [of salicylamide]." This extrapolation is then accepted as a scientific fact, because in their conclusions they state that "the greater margin of safety of salicylamide must also be taken into account." The authors refer to Seeburg and others (*J. Pharmacol. & Exper. Therap.* 101:275-282 [March] 1951) as their basis for stating that the LD_{50} of salicylamide is "approximately twice that of aspirin." Actually, Seeburg presents no data on LD_{50} in this article.

Table 1.—*LD_{50} Values in Mice, in Grams per Kilogram of Body Weight, After Ingestion of Salicylamide and Aspirin*

	Salicylamide (SAM)	Aspirin (ASA)	Ratio SAM:ASA
Drebinger (Medizinische 7:795-797 [June 7] 1952)	1.14	1.87	0.61
Carron and others (Therapie 7:27-36, 1952)	0.60	0.83	0.75
Hart (J. Pharmacol. & Exper. Therap. 89:205-209 [March] 1947)	1.40	1.10	1.27
Bavin and others (J. Pharm. & Pharmacol. 4:872-878 [Nov.] 1952)	1.39	1.30	1.22
Boxill and others (J. Am. Pharm. A. Scient. Ed. 47:479-487 [July] 1958			
Fasting	1.20	0.96	1.26
Nonfasting	1.50	1.00	1.50
Matsumura (Fol. Pharmakol. Japan 50:60, 1954 [From Bekemeier, Arzneimittel-Forsch. 5:572-575 (Oct.) 1955])	1.15	0.75	1.53

A search of the literature discloses six reports (table 1) on the oral LD_{50} values in mice in grams per kilogram of body weight. Two of the reports show salicylamide as the more toxic, and four show aspirin as the more toxic. However, in no case is aspirin reported to be twice as toxic.

Justification for the statement that aspirin is approximately twice as toxic as salicylamide has not been found, even when a thorough search of the literature was made for all species. Oral LD_{50} values reported for the rat, rabbit, guinea pig, and cat in grams per kilogram are shown in table 2.

It can be seen from these values that the relative toxicity of salicylamide and aspirin administered orally varies in the same species under different conditions and in different species. In rats, two authors found salicylamide to be more toxic and two others found aspirin the more toxic. Oral LD_{50} values in cats show that salicylamide is approximately three times as toxic as aspirin; while on the other extreme in the rabbit salicylamide is reported as approximately 0.6 as toxic as aspirin. It is difficult to see how any extrapolations from these reported values in animals could provide a valid relative toxicity ratio for humans that would show one drug to be less toxic than the other.

Table 2.—*LD_{50} Values, per Kilogram of Body Weight, in Experimental Animals*

	Species	Salicylamide (SAM)	Aspirin (ASA)	Ratio, SAM:ASA
Hart (J. Pharmacol. & Exper. Therap. 89:205 [March] 1947)	Rat	1.40	1.50	0.93
Boxill and others (J. Am. Pharm. A. Scient. Ed. 47:479-487 [July] 1958)	Rat	0.98	1.43	0.68
Drebinger (Medizinische 7:795-797 [June 7] 1952)	Rat	1.49	1.24	1.20
Ichniowski and Heuper (J. Am. Pharm. A. Scient. Ed. 35:225-230 [Aug.] 1946)	Rat	>2.00 2.00	>2.00 1.00	1.00 2.00
Boxill and others (J. Am. Pharm. A Scient. Ed. 47: 479-487 [July] 1958)	Guinea pig	1.73	1.07	1.60
Hart (J. Pharmacol. & Exper. Therap. 89:205-209 [March] 1947)	Rabbit	>3.00	1.80	>1.69
Bekemeier (Arzneimittel-Forsch. 5:572-575 [Oct.] 1955)	Cat	0.1-0.15	0.40†	<0.25 to 0.37

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* The widely different results reported require clarification.

† Value of 0.4 is for salicylic acid which is more toxic than aspirin.

The statement of Vignec and Gasparik, in their summary and conclusions, that "a comparative study of the effectiveness of salicylamide (Liquiprin) and acetylsalicylic acid (aspirin) indicated that both drugs controlled pyrexia . . . equally well and with the same number of doses," is extremely misleading. Though approximately the same number of doses were required, each dose of salicylamide was twice that of aspirin. Therefore, twice as much salicylamide was administered over the same period of time. With evidence that salicylamide and aspirin are each more toxic than the other under certain conditions and in certain species, the use of twice the dose of salicylamide in their study would appear to be the more hazardous procedure. Actually, the doses of salicylamide used in their study were two to three times the recommended doses as stated on the label and package (table 3). No explanation was given for the use of these larger doses.

Table 3.—*Doses as Used by Vignec and Gasparik and as Recommended by Manufacturer*

Age	Dose, Mg.		Ratio, Dose Used: Dose Recommended
	Used	Recommended	
0-6 mo.	64	20	3.2
6-12 mo.	128	60	2.1
1-2 yr.	256	120	2.1
2-3 yr.	384	200	1.9

It is well known that the temperature of children is quite labile and that fever "breaks" and disappears spontaneously in many instances. The absence of any control untreated children in the study is indeed unfortunate. The many items cited above justify withholding judgment on the comparative toxicity and antipyretic activity of aspirin and salicylamide until adequately controlled studies are available.

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PATHOLOGIST'S DEATH CERTIFICATE

To the Editor:—An interesting and timely article, "What Is 'the Cause of Death'?" by Erhardt, appeared in THE JOURNAL (168:161-168 [Sept. 13] 1958). The author is primarily making a plea for accurate death certificates so that they can have valid meaning in compiling scientific, medical, and public health reports. He states, "Solely the physician in attendance, therefore, can judge adequately which of several conditions was the most important factor in the death of the patient."

As a pathologist, I wish to challenge the validity of this statement and to offer some constructive suggestions. Many people die without benefit of medical attendance except terminally, especially when death is sudden, as it often is. Many people change physicians for their terminal illness, calling in the nearest physician or the first physician they succeed in contacting. Many patients are transferred from the neighborhood physician to a strange physician in a nearby hospital for their terminal illness. Many people die and are certified by coroners who are sometimes laymen and often without benefit of autopsy. People move to new communities and have new doctors. It is said that one-fifth of the population of the United States moves to a new home each year.

Even when people die in hospitals and have been fully and adequately studied, the cause of death, as certified, is incorrect in a high percentage of cases when there is no autopsy. The accuracy of "the cause of death" as determined by clinical findings alone is probably no greater than 40%, a charitable estimate. There are many possible discontinuities in the clinical study of a patient which cannot always be avoided.

The point is that death certificates are not very accurate and cannot be expected to be very accurate even under the highest standards of present-day clinical practice. I have known of instances where the physician did not know the cause of death and freely admitted this. Coroners usually refuse autopsies on this ground alone and inform the physician to make the best guess he can, which usually turns out to be "heart failure."

There is only one effective way to make death statistics accurate and that is to base them, where possible, on the findings of autopsies performed by competent pathologists. The large mass of accurate autopsy data which is accumulated in hospitals today is mostly wasted as far as death statistics are concerned.

Question No. 20 on the standard death certificate —Autopsy? Yes, No—is of little help. The inference is that if there was an autopsy, the death certificate was completed on the basis of the autopsy findings. This is not necessarily so. The physician is not required to use the autopsy findings and frequently does not do so. The death certificate is sometimes completed when the person is pronounced dead, without waiting for autopsy findings and without knowing whether there will be an autopsy. In some places, this is standard practice and is encouraged or enforced by administrative rule. In addition, "the death certificate cannot wait." It must be completed promptly for the convenience of the funeral director and the survivors so that prompt funeral arrangements and burial can be made. It may take several days or even weeks to complete the scientific autopsy studies.

If the states, the public health people, and the vital statistics workers want accurate death statistics they can have them and they can have them in abundance. Supplemental death certificates, which might be called "Pathologist's Death Certificates" should be legally authorized. Pathologists should be required to complete such certificates for all autopsies that they perform and submit them to the vital statistics officer concerned within a reasonably limited period of time, such as 60 or 90 days.

A legislative program such as this would produce a large volume of highly accurate data on the causes of death and should, in the long run, result in many scientific medical advances. At least, we would have an accurate scientific picture of what the most important medical problems are. Autopsies do not always disclose the true cause of death, but their accuracy, when they are properly performed, is about 98 to 99%.

Today, the pathologist completes his scientific labors in his rather highly accurate field of work, writes his report, and finds it buried in the hospital record room, just as effectively buried as the body on which he performed the autopsy. A small percentage of these reports are used locally for teaching purposes. A still smaller percentage, usually the rarest cases, are published.

The supplemental death certificate is not without precedent. They are used in a limited way in a few jurisdictions. It is my understanding that the city and county of San Francisco started using such certificates on an optional basis many years ago. There should be a separate and mandatory "Pathologist's Death Certificate" in all cases of autopsy. Such a death certificate might occasionally cause embarrassment to a few physicians. It should be no greater than that which tissue committees now cause occasionally in the case of surgeons. Any small individual embarrassment would be a small price to pay where the greater public welfare is at stake. When the realities of the matter are studied, there should be no embarrassment at all for any physician. In the present state of development and utilization of medical science, no physician should be expected to have an omnipotent ability to determine "the cause of death."

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THE LEISURE CORNER

GEMS AND PRECIOUS STONES

During periods of peace and prosperity gems and precious stones have many purchasers. All minerals and stones that are used for jewelry and other ornamental purposes are called gems. During war and depression the more valuable gems are sold, traveling from one owner to another and from one country to another. Historically speaking, there seems to be an interrelation between war and jewelry. Centuries ago warriors frequently carried their jewels with them into the thick of battle. Not too long ago the royal sale of jewels and precious stones provided funds for the conduct of war, while private individuals sold their gems so that they might survive. It still works both ways today—for martial governments on the march and for ordinary mortals. Heirlooms cherished for generations by families often find methods and means for entering exclusive shops on Fifth Avenue—the purpose, of course, to be sold. War has a characteristic way of poking greedy fingers into jewel boxes and then tossing the loot where it may.

Hardness, color, brilliance, rarity, and demand determine the value of gems. As a rule, diamonds are prized gems because they surpass all others in hardness and brilliance. Probably the most famous and celebrated diamond in the world is the Kohinoor, which was presented to Queen Victoria, in 1850, by the East India Company. The Cullinan diamond was famous because it was the world's largest at one time, weighing a little over 1.5 lb. before it was cut into 2 large stones, 7 smaller ones, and 96 others of lesser size. The largest of these, the 530-carat Star of Africa, is among the crown jewels of England and is set in the royal scepter.

A diamond of the highest degree of purity and fineness is said to be "of the first water." Color is the most important factor in judging a diamond. Those of the finest quality are perfectly clear. Some varieties of diamonds are green, orange, red, yellow, or blue. The most valuable ones are those in which the tint is decided and equal throughout. Even the lightest tint of a different color in a diamond affects its commercial value unfavorably and the finest gems can be spoiled by poor cutting. Rubies are more valuable than sapphires because they are rarer, although both have the same degree of hardness. The value of sapphires depends on the quality of their blue color. The emerald is often as valuable as the diamond, and its value is determined by size, freedom from flaws, and the shade of the green color. Pearls are graded by size, color, and perfection of shape, while opals are valued according to their color flashes. The so-called black opals are the most valuable.

In general, experts identify different kinds of gem minerals by the shape of the uncut crystals, color, index of refraction, hardness, specific gravity, and other properties. The shape of crystals differs with each gem material, but the shape of all crystals in any one mineral is usually the same. Color is one of the major factors in determining the beauty and splendor of gems. There are two types of colors in gems, essential and nonessential. Essential color is the color of the mineral itself, when pure, while nonessential color is the result of an impurity in the mineral. Minerals with a low index of refraction (the measurement of the speed of rays of light passing through a mineral) usually display a low luster. Hardness is an important quality of gem minerals. Few stones can become valuable gems unless they will wear for a long time. A scale has been established to indicate the sequence of hardness of each gem material, and it numbers from 1 to 10. Only minerals with a rating of seven or more wear well as gems. The diamond is the hardest and has a rating of 10.

The underlying rock type is the prime factor largely determining the kind of gem minerals found all over the world. Turquoise is found in great quantities in the southwestern part of the United States as well as in Tibet. Opal and turquoise are found where there is little rainfall. Emerald, topaz, and tourmaline are found in areas where erosion has exposed old, once molten rocks at the surface. Emeralds are found in the Ural Mountains, Colombia, and South Africa, while the finest topaz comes from Brazil. The best rubies come from Burma and the best sapphires from Kashmir. The finest opals come from Australia, and the most desirable pearls are derived from the waters of the Persian Gulf and the South Pacific Islands.

The beauty of a gem stone depends largely on its luster; hence, the appearance of a gem is somewhat equivalent to the texture of a flower. As a matter of fact, the word gem comes from the Latin word gemma meaning bud, and the story of precious stones can be compared to the blooming of flowers. An authority on gems recognizes the following eight different types of luster: (1) adamantine: a luster characteristic of diamonds; (2) vitreous: having an appearance of broken glass (as sapphire, ruby, topaz, tourmaline, and rock crystal, which are all transparent, vitreous in luster); (3) metallic (only opaque gem stones, for example, hemetyte and pyrite); (4) pearly: like a pearl (as moonstone and opal); (5) waxy (as turquoise); (6) resinous (as garnets); (7) silky (as green malachite); and (8) oily (as chrysolite).

The craftsman—sometimes a painstaking hobbyist—who cuts, polishes, and engraves gems is known as a lapidary. The word itself is derived from the Latin word lapis, meaning stone. Lapidaries flourished in Assyria and Babylonia several thousands of years ago. A sapphire point was used in cutting until about 3,000 B. C., when the bow drill was introduced. Contemporary gem cutters employ a lathe with a point or disk of soft iron, coated with diamond dust and oil. Before the 1300's most gems were polished smooth and closely retained the original size and color of the stone. The practice of cutting flat surfaces or facets is fairly modern.

Since nature yields her precious stones reluctantly and only the comparatively well-to-do may own them, the craving for gems has gone on for centuries. This, in part, has been satisfied by the glassmaker, the alchemist, and the chemist. Imitation gems have a wide market. Today, the basis of most imitation gems is a soft glass called paste or strass. This glass is clear and brilliant, and is made of pure powdered rock crystal, red lead, and dry potassium carbonate. Imitation gems made from this paste can be scratched easily. White sapphires, colorless zircons, and clear quartz make inexpensive substitutes for diamonds. An old-time formula for making a sapphire reads as follows: "Take a crystal, 1 lib., grind it very fine and sift it, afterward put ½ lb. of the powder of stags bones burnt, if you can procure them, if not of other animals, or sal. alkali lib. ½, grind all very fine, and mix them well together. Take this powder and put it into a strong pot, covered and luted outside; when you have cooked this in a glassmakers' furnace, allow it to remain for 5 or 7 days, and it is there melted like glass. Afterwards place good 'azurio ultramarino' (made from lapis lazuli) and being mixed together will make the beautiful blue tone for making sapphires." Certainly, the old-timers had a formula for it.

Today, the chemist does not go in for hunting a stag and burning its bones to assist him in creating artificial gems. In recent years, synthetic gems of good quality have been produced in the laboratory. Rubies and sapphires have been made with chemical and physical properties that simulate the original. Nonetheless, the artificial gem cannot qualify as a true gem. Nothing can take the place of a mineral that nature has formed, unassisted by chemists. The dominant qualities that stand out in a true gem include outstanding beauty, sufficient hardness to retain that beauty, and the rarity that only the wonders of nature can produce.

BUSINESS PRACTICE

This is the fourth in a series of excerpts from the brochure on the Business Side of Medical Practice, prepared by the American Medical Association in cooperation with the Sears-Roebuck Foundation.

LOCATING THE OFFICE

The next action a doctor must take who has selected his community and checked into licensing questions is to find an office. He has to decide whether to build, remodel, or rent space.

Building an Office

Although the idea of planning the ideal medical office from the ground up is appealing, few doctors starting out in practice have enough money to do so. Some doctors think it is wiser to practice in a community and definitely determine practice needs before building. Too often a doctor who has hurried into building programs discovers later that the office meets neither his nor his patients' needs.

For the physician who can build his own office there are some words of advice: 1. Consider the most ideal location from your standpoint as well as the patients' standpoint. 2. Check with a reliable realtor about property availability. 3. If the building site is in a residential zone, check with the zoning commission to find out if medical offices are allowed. 4. Make sure the sewer, water supply, electric service, telephone service, and gas service are adequate. This is particularly vital in suburban areas. 5. Get the consulting services of an architect to help make the final decision about purchase of the property. Utilize his services in design of the proposed building. (In most communities services of a member of the American Institute of Architects can be secured.) 6. Building an office is a business venture, involving expenditure of considerable cash. The whole process should be conducted in a business-like manner with the aid of experts secured to make sure it is a sound investment.

Renting an Office

The doctor who decides to rent is sometimes limited in the selection of a location by what space is available. In the suburbs and smaller towns adequate office space may be hard to find. He probably will be offered these possibilities: space in a downtown medical center or office building, a suburban location, or a combination home-and-office arrangement (see table).

It is best to analyze all the possibilities in terms of the kind of practice envisioned and the doctor's own personal desires.

Office Essentials

In deciding on an office location, there are several factors which should serve as a yardstick. Is it accessible and convenient from the patients' standpoint? Obviously, if it is six blocks from the end of the bus line or if patients have to run outside to deposit pennies in a parking meter every few minutes its location leaves something to be desired. Is it adequate space-wise and convenient from the doctor's standpoint? The beginning doctor generally can manage with a reception room, examining room, and consulting room for the first year, but he soon will need more room. If the layout of the office is inconvenient for the physician, he'll waste valuable minutes and tire himself out working in it. It probably is wiser to take a long-range approach to selection of an office location and pay rent on an extra room or two at the outset rather than try to secure more space later or move to a new location.

The less remodeling required, the better. However, remodeling is sometimes a quick, easy, and fairly inexpensive way to establish a new medical office unit. Store buildings and large residences often can be converted into medical offices with a fairly small original investment. The feasibility of remodeling should be determined only after consulting experts—builders and architects who can appraise the structure, the adequacy of heating, plumbing, electrical systems, and the possibilities for efficient office layout.

A physician who remodels or makes minor alterations in leased or rented space should protect himself with a long-term lease, since all the money he invests is the landlord's gain. If the landlord pays for improvements, the cost shows up in higher rents. If the tenant pays, he can amortize the investment over the period of the lease for tax purposes.

Office Planning Guide

A detailed planning guide for establishing medical practice units, complete with checklists for evaluating possible office locations, plans for various types of offices, and lists of necessary equipment, is available to physicians on loan from the American Medical Association's Council on Medical Service. The U. S. Public Health Service also has available an office planning guide for physicians.

Plan carefully when setting up an office. The kind of practice and the speed with which it is built depend to a large extent upon the location and arrangement of the office.

Leases

"Look before you lease" is good advice for any tenant. It pays the physician to go over a lease line by line, preferably with an attorney, so that he knows exactly what he is signing.

Every lease should contain a description of the premises, including rooms and other storage space, and list any furnishings to be provided with a description of their condition. It should stipulate what services are to be furnished by the landlord in the way of utilities, janitor, and elevator service (if any) and who pays for decorating, alterations, and the expense of restoring the premises to their original condition when the doctor moves out.

Pros and Cons of Office Locations

Pro	Con
Downtown Medical Center	
Space designed for M.D.'s usually available Other M D.'s available for referral; good for specialists Auxiliary medical services available nearby	May be costly, cramped Patients may not be able to find a doctor marooned in a downtown "ivory tower" Parking space may be difficult to obtain
Neighborhood or Suburban	
Good for GP's, internists who draw patients from the area; more specialists also settling here Space for parking usually available May not be many other doctors in the area Office can be more home-like, informal	Space may be at a premium or available offices may need extensive remodeling May not be near public transportation; not all families have two cars Neighborhood may appear to be good but beginning downhill slump May have to settle for upstairs office which is not ideal for patients
Home and Office Combination	
Saves time and money	Seldom satisfactory, not enough privacy for patients, and doctor never escapes from practice; check zoning

Provisions should be included for subletting part or all of the premises in the event that the physician is unable to continue as a tenant. The doctor should also be relieved of any further liability should another tenant be assigned the lease. A right to terminate the lease is also advisable should a physician find it necessary to move for professional or other reasons.

An option to renew, specifying that the notice to renew the lease must be in writing, and submitted on or before a certain date, is a definite advantage to the doctor. Another possibility to consider is this: in leases covering more than three years it sometimes can be arranged that the monthly rental to a doctor just setting up practice is lower during the first year with the difference made up by higher monthly rentals later. Sometimes a landlord, anxious to secure a doctor-tenant, will provide a month or two of free rent. All possibilities should be investigated before signing, and any verbal promises should be put on paper.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Aplastic Anemia: An Analysis of 50 Cases. D. N. Mohler and B. S. Leavell. Ann. Int. Med. 49:326-362 (Aug.) 1958 [Lancaster, Pa.].

The authors studied 50 patients with aplastic anemia, their ages ranging from 4 to 82 years, at the University of Virginia Hospital in Charlottesville between 1933 and 1956. All the living patients have been followed for at least a year, and only 2 have been lost to follow-up. The other 35 were followed until the time of death, and autopsies were performed on 14. The peripheral blood and bone marrow of each patient were examined, and in each instance there was evidence of defective blood production. Patients were excluded from this study if they had chronic infection, malignancy, malnutrition, renal disease, or liver disease, conditions known to depress bone marrow functions, or if they had been treated with agents such as nitrogen mustard derivatives, urethane, and irradiation. Patients with myelofibrosis and myeloid metaplasia were also excluded. The most common symptom was weakness associated with a bleeding tendency, such as epistaxis, menorrhagia, and bleeding from the gums. All the patients with hemorrhagic manifestations had thrombocytopenia, but not all the patients with thrombocytopenia had abnormal bleeding. Most of the patients had pancytopenia, macrocytic anemia, relative lymphocytosis, and hypocellular bone marrow. However, in 13 patients the bone marrow was normocellular or hypercellular, and 7 patients had anemia that was not associated with leukopenia or thrombocytopenia. Although the most important factor in the anemia in these patients was deficient erythrocyte production, the presence of an associated hemolytic component, manifested by increased fecal urobilinogen excretion and mild reticulocytosis, was not unusual. Exogenous hemochromatosis was found in 6 of the 14 patients on whom autopsies were conducted. Brownish-gray skin pigmentation, lymphadenopathy, hepatomegaly, and splenomegaly occurred commonly in patients who received multiple transfusions. Toxic exposure was thought to be the etiological agent in 7 patients, while the cause was unknown in 43.

The prognosis was most favorable in patients with anemia alone and in those with hypercellular bone marrow. However, an illness of long duration was not uncommon in those with pancytopenia and hypocellular bone marrow. Although 12 of the 37 patients who presented with pancytopenia died within a year, 6 lived more than 5 years and 1 survived 20 years. A complete remission occurred in 6 patients, and a partial or temporary remission in another 6 patients. Both the spontaneous remissions and those that followed corticosteroid therapy and splenectomy occurred most often in patients who had anemia alone.

New Results in Treatment of Acute Leukemia with Metacortandracin. R. Picard, J. Horeau, J. Guillon and C. Robin. Presse méd. 66:1064-1067 (June 14) 1958 (In French) [Paris].

The authors present a follow-up of 6 patients with acute leukemia, whose cases were previously reported (*Presse méd.* 64:301-302 [Feb. 18] 1956, an abstract of which was published in THE JOURNAL 161:648 [June 16] 1956), and the results obtained in 19 additional patients, all of whom were treated with prednisone (Metacortandracin). The incidence of this disease in subjects less than 40 years was 70%; 18 patients died after periods of illness ranging from 4 days to 13 months. The average survival time was somewhat more than 4 months. The deceased patients were classified in 3 groups according to the duration of the disease; 5 with acute forms, who had a survival time of less than 1 month; 10 with subacute forms, who had a survival time of 1 to 6 months; and 3 with prolonged forms, who had a survival time of about 1 year. Two patients were lost to follow-up, and 5 patients are still alive. Of 2 surviving patients who have had remissions lasting several months, 1 is still alive after a follow-up of 20 months, and the other after 17 months. The other 3 living patients have had a follow-up of about 10 months.

The prednisone therapy was started with a standard dose of 100 mg. (larger doses of 250 or 500 mg. did not seem to be more effective), which was administered for 3 or 4 days and then gradually decreased by 10 mg. at a time until a maintenance level was reached in about 2 weeks. The mainte-

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The place of publication of the periodicals appears in brackets preceding each abstract.

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nance dose was just enough to prevent reappearance of signs of the disease. This dose may be given, in principle, for an unlimited time. Prolonged treatments, lasting from 1 to 10 months, have been carried out by the authors in 12 patients. The current total doses in this series were of the order of from 5 to 7,000 mg. of prednisone. A record high of 12,000 mg. was given to 1 patient. Treatment had to be interrupted in only 2 patients.

The initial dose of prednisone was evidently of the greatest importance in regard to the restoration of a normal body temperature. It also had a good effect on the general well-being of the patients, except in those who died within a few days. Failure to obtain a good effect on the temperature by the treatment indicates a rapidly fatal outcome of the disease. Treatment with this drug, however, is not only ineffective but may even be dangerous in patients with fever of infectious origin; consequently, a careful and thorough search for a focal infection should be made, and in doubtful cases the systematic administration of antibiotics is advisable. Beneficial effects of the administration of prednisone on osteoarticular pain have been observed, except in a few patients with localized foci which, on the contrary, responded remarkably to local roentgenotherapy. The effect of the drug on the hematopoietic system is difficult to evaluate because of the almost constant use of transfusions. Nevertheless, definite improvement was obtained in the peripheral blood by prednisone alone, as shown by the values of both the red blood and the white blood cells. Complete normalization of the blood picture was even obtained in 2 patients. Stress must be laid on the excellent quality of the remissions from the functional point of view, which gave the patients a feeling of complete recovery.

A Toxic Agent in the Etiology of Leukemia. R. Scheuer-Karpin. Ztschr. ges. inn. Med. 12:416-423 (June 15) 1958 (In German) [Leipzig, Germany].

The author reports on clinical observations made on 40 patients with granulocytopenia or acute myelosis at the first clinic for internal medicine of the Hufeland Hospital in Berlin-Buch. Of these 40 patients, 14 had taken dimethylaminophenyldimethyl-pyrazolon (Pyramidon), 6 acetophenetidin (Phenacetin), and 8 various other medications, such as methylthiouracil, phenolphthalein, quinacrine hydrochloride (Atabrine), and analgesics. Twelve had taken no medication as far as could be determined. Examination revealed that toxic granulocytopenia and acute myelosis are always associated, since they have a common etiology. Granulocytopenia may develop into acute leukosis if the patient lives long enough. Hypercellular bone marrow with numerous immature forms in a patient with granulocytopenia is not a sign of regeneration, and the prognosis in such a patient is not favorable, for in most cases acute myelosis has been found later. The administration of Pyramidon in combination with other etiological agents can produce granulocytopenia and then myeloblastic leukemia. Phenacetin and its derivatives are suspected of causing similar blood dyscrasia.

Severe Effects of Influenza Virus Infection. J. A. Forbes, M. J. Australia 2:75-79 (July 19) 1958 [Sydney].

The Asian, type A, influenza epidemic in Melbourne, Australia, prompted the author to make a study of 672 patients admitted to Fairfield Hospital in that city during July and August, 1957. These patients showed clearly some of the relatively infrequent, more severe effects of influenza virus infection. Of the 672 patients, 169 had uncomplicated influenza, with a great variety of symptoms. About 120 of these complained of severe headache, often associated with generalized aches and pains, and in 31 patients the combination of headache and meningism was such that lumbar punctures were performed revealing normal cerebrospinal fluid. No evidence was thus found of direct cerebral or meningeal involvement by the influenza virus. One hundred twenty-seven patients were admitted to hospital with severe laryngeal obstruction, 93 of them being children, aged 9 years or less. Influenza in young children may well predispose to secondary bacterial laryngotracheobronchitis; it can accelerate the obstruction of the airways, for they are small and likely to be impaired by the inflammation and edema which are produced by a pathogen with a predilection for respiratory epithelium and lymphoid tissue. The remaining 376 patients were admitted with pneumonia. Although younger patients predominated in this group, bacterial complications were proportionately more frequent among those over 40 years of age.

It was considered that the over-all isolation rate of pathogens from all the patients of this study provided a useful practical index of the causative agents as a basis for the initial treatment of these patients. It was apparent that the commonest pathogenic agent was Diplococcus pneumoniae, and this was confirmed by the clinical details, by x-ray appearances, and even by postmortem findings which showed it to be most commonly involved in death. Streptococcus, group A, appeared to be the next important causative agent, and Staphylococcus organisms were involved to a minor extent. Penicillin was used alone in the treatment of 82 patients who were admitted at an early stage of the disease. Tetracycline was combined with penicillin in the treatment of 201 patients in whom a broader antibiotic spectrum seemed desirable. According to subsequent bacteriological findings, combinations of penicillin, streptomycin, erythromycin, and Chloromycetin were used in those patients in whom it was considered that delay in the selection of the appropriate antibiotic would result in death. Adult patients with severe pneumonia were given 2 million units of penicillin every 2 hours; it was apparent that these large doses caused more rapid subsidence of fever and toxemia than did the administration of 1 million units every 6 hours.

Thirty-eight deaths occurred among the 672 patients. Most patients died as a result of associated diseases, such as congestive cardiac failure, cerebrovascular accidents, nephrosclerosis, emphysema, and myocarditis. Twelve of the 38 patients died of severe pneumonia. These data suggest that the influenza virus (Asian, type A) infection caused death occasionally in the absence of associated bacterial infection, while the severity of the secondary pneumonia suggested that without antibiotics, and particularly without penicillin, the mortality rate would have been even higher.

Hyperventilation Syndrome. J. Calvo Melendro and P. Sánchez-Malo Calvo. Rev. clín. españ. 69:205-210 (May 31) 1958 (In Spanish) [Madrid].

The syndrome of spontaneous (or idiopathic) pulmonary hyperventilation is of psychic origin. It is mainly due to emotions and linked to anxiety. It can be either acute or chronic. The predominant symptom is hyperpnea, which appears in association with dizziness, a feeling of emptiness of the head, cloudy state of the mind or complete loss of consciousness, certain sensorial and digestive signs, tachycardia, and precordial pain. In the course of the attack the arterial blood pressure falls; the electrocardiogram shows extrasystoles and abnormalities of the S-T segment and of the T wave, signifying a diminished output of the left ventricle. The electroencephalographic tracings are also changed. A diagnosis is made by the results of the pathognomonic test, which consists of the induction of provoked hyperpnea. The test is made by having the patient breathe deeply at a rate of 40 respirations a minute. In the presence of the syndrome a typical attack occurs within 15 or 30 seconds. In normal persons the test gives negative results even after 3 minutes. The contratest consists in making the patient breathe into a paper bag during an attack, thus compelling him to rebreathe his own expelled air. By these means the attack is aborted, and the act of breathing becomes normal within 15 or 20 respirations. The syndrome is frequent in women and rare in men.

The authors report 6 cases of hyperventilation syndrome in women, between the ages of 27 and 37 years. In all the patients the test of provoked hyperpnea and the contratest gave positive results. Emotions, excessive physical work, or mental anxiety were the eliciting factors of the attacks, which were repeated at very long and irregular intervals of time. In all the patients, also, the attacks lasted for a period that varied between 1 hour and 24 hours, during which more or less subdued hyperpnea continued. The hyperpnea stopped only if the attack ended, if the patient became unconscious, or if the contratest was carried out. The authors believe that the syndrome is caused by associated circulatory disturbances and disturbances of the centers of respiration. The main circulatory disorders involved in the development of the syndrome are an increased reflux of venous blood to the heart and a diminished arterial blood pressure.

Five-Year Follow-Up Study of Patients with Bleeding Duodenal Ulcer with and without Surgery. R. M. Donaldson, J. Handy and S. Papper. New England J. Med. 259:201-207 (July 31) 1958 [Boston].

Of the 1,149 clinical records of patients admitted to the Cushing and Boston Veterans Administration hospitals with conditions classified as "duodenal ulcer with hemorrhage," "gastrointestinal hemorrhage" without other symptoms, and "duodenal ulcer," 142 were selected for study, as they presented indubitable evidence of gastrointestinal bleeding and duodenal ulceration. Each of the patients had had one or more of the following: black stools (positive guaiac test), hematemesis, bloody gastric aspirate (positive guaiac test), and roentgenographic demonstration of a deformed duodenum or a definite ulcer. For purposes of study the patients were divided into 2 groups. The first group consisted of 100 patients who were first seen during their initial episode of gastrointestinal bleeding; the second group consisted of 36 patients who gave a history of one or more previous gastrointestinal hemorrhages. Before their present admissions, 71 patients had received transfusions of whole blood, and in 61 cases a diagnosis of duodenal ulcer had been made by x-ray examination; 22 patients, however, had not experienced abdominal pain or any other symptoms referable to the gastrointestinal tract. Roentgenographic confirmation of duodenal ulcer was accomplished in 127 patients, duodenal-bulb crater in 73, deformed duodenal bulb in 46, and postbulbar ulcer in 8.

Of the 100 patients in the first group, 38 suffered hemorrhage within 5 years of the initial episode, 10 of the patients bleeding on more than one occasion. Of the 13 patients operated on during the initial episode, bleeding was the major indication for surgery in 11, and associated pyloric obstruction in 2. An additional 25 patients were subjected to subtotal gastrectomy sometime during the 5-year period. Eleven of the 100 patients died within 5 years of the initial bleeding episode, 8 deaths being directly attributable to uncontrolled hemorrhage. Six of the deaths occurred during the initial hemorrhage, and 2 were due to proved gastrojejunal marginal ulcers developing 5 days and 2 months, respectively, after gastrectomy. In the first group there were 37 survivors at the end of 5 years who had had neither gastrectomy nor recurrent hemorrhage, a number which was reduced to 32 almost 2 years later. Of the 36 patients in the second group, 15 had further bleeding episodes within 5 years of the initial episode. There were no deaths in this group in the follow-up period, and at the end of this period 10 patients still had had neither gastrectomy nor recurrent hemorrhage. Recurrent bleeding within a 5-year period occurred in approximately 40% of the patients not operated on. There was a significant recurrence of bleeding after subtotal gastrectomy, 10 of 48 patients operated on experiencing hemorrhage within 5 years of operation.

SURGERY

Mitral Commissurotomy: Fifty Consecutive Cases with No Operative Mortality. A. M. Sabety and H. M. Ewing. J. M. Soc. New Jersey 55:418-421 (Aug.) 1958 [Trenton].

The authors report on their experience in the performance of 50 consecutive mitral commissurotomies without a single operative death. The present-day success of the surgical procedure is attributed to a better understanding of the abnormal physiology of mitral valvular stenosis and its alteration toward normal by surgery and to the tremendous strides that have been made in the selection of patients, operative technique, preoperative and postoperative care, and anesthetization. For purposes of classifying patients as to need for commissurotomy, those in this series have been divided into 4 groups: (1) patients who were asymptomatic, 0; (2) patients whose main symptom was dyspnea, 20; (3) patients with pulmonary hypertension, 26; and (4) patients with chronic right-heart failure, 4. An appreciable amount of calcification was found in 9 patients; no calcification was found in 19 patients; a regurgitant jet was noted in 13 patients; and 36 patients were operated on during chronic atrial fibrillation. The operative technique was essentially that which has become routine procedure in mitral commissurotomy; it emphasizes meticulous attention to every detail in opening the stenosed valve to its fullest extent and separating the chordae tendineae if they are found to be fused.

Failure and Replacement of Abdominal Aortic Grafts. M. R. Gaspar. Am. J. Surg. 96:202-212 (Aug.) 1958 [New York].

The author reports on 5 men, between the ages of 55 and 75 years, 4 of them with aneurysm of the abdominal aorta and 1 with thrombotic occlusion of the abdominal aorta, in whom grafts were used to bridge the defects resulting from the surgical removal of portions of the aorta. Nylon grafts were used originally in 2 patients and freeze-dried homografts in 3. Failure of the original aortic grafts occurred in all 5 patients. Thrombosis was the pathological process in the 2 patients with nylon grafts and in 1 patient with homograft. Failure occurred over a wide span of time, varying from the time of operation to 14 months after operation. Residual arteriosclerosis was the cause of failure of the 2 nylon grafts and 1 homograft. Obviously all of an aneurysm should be resected. Residual arteriosclerosis is more easily overlooked but must be removed or bypassed because it fosters occlusion of the graft. A poorly fashioned cloth synthetic graft was instrumental in the failure of the graft in 1 patient, thus showing that imperfect fashioning of grafts may be another cause of failure. Imperfect anastomoses also contributed to thrombosis within grafts. Defective freeze-dried homografts were the cause of failure in 2 of the 5 patients; in one patient the homograft ruptured at operation and in the other on the 4th postoperative day. Freeze-dried homografts appear to be unreliable unless some more satisfactory method of preparation is found. Four other ruptures of grafts were observed by the author, 2 in patients in whom freeze-dried human aortic grafts were used and 2 in cases of freeze-dried dog homografts. Synthetic grafts have not shown a tendency to rupture.

When abdominal aortic grafts fail, the entire grafts should be replaced. Bifurcation homografts were used for replacement in 2 of the 5 patients in whom the original grafts had failed, and thoracic aortic homografts were used for replacement in 3. Thoracic aortic homografts provide a larger diameter than bifurcation grafts and can be fitted more easily at the proximal end of the anastomosis. The replacement was successful in 4 of the 5 patients. Although this series is small, these results suggest that an attempt should be made to replace abdominal aortic grafts which fail. Additional years of observation will show which material is to be considered the best graft material for arterial substitutes.

The Outlook of Vascular Surgery Upon the Aged. C. R. Hitchcock and T. O. Murphy. Journal-Lancet 78:329-335 (Aug.) 1958 [Minneapolis].

Of 260 patients with vascular disease operated on at the University of Minnesota Hospitals and the Minneapolis General Hospital up to Sept. 1, 1957, 250 (96%) were 55 years of age or older. There were 150 patients with occlusive arterial disease; of these, 107 (71%) were between the ages of 60 and 75 years, and 29 (18%) were between the ages of 75 and 90 years. One hundred ten patients were operated on for arterial aneurysm; 74 (67%) of these were between the ages of 60 and 75 years, and 25 (22.7%) were over 75 years of age. In 83 (76%) of the 110 patients operated on for correction of a major arterial aneurysm, the procedure was successful. In the 18 patients operated on for ruptured aneurysm, 14 deaths occurred, and successful repair was done in only 4 (29%). Of the 92 patients operated on electively for aneurysms, only 10 died and the operation was successful in 80 (87%). These data emphasize the significant difference in the success rate of resection of aortic aneurysms in the elective stage as compared with the ruptured stage. Of the 150 patients who were operated on for segmental occlusive arterial disease and in whom bypass shunt grafts were used, the operation was successful in 16 (82%) of 21 patients with aorta-femoral bypass shunts, in 58 (79%) of 74 patients with femoral-popliteal bypass shunts, and in 2 patients with popliteal bypass shunts. The bypass type of arterial reconstitution is easier to accomplish technically than an in-line graft establishing direct continuity of the blood flow, since the arteries involved in the extremities are usually relatively normal, and end-to-side anastomoses are done with ease. The important small collateral arteries are not damaged by the bypass shunt technique; in the event of a subsequent thrombosis of the bypass shunt graft, the original vascular supply to the extremity is not significantly damaged, and the extremity, therefore, is not jeopardized.

These findings emphasize the tolerance of the elderly patient toward extensive vascular surgery. With advanced methods of anesthesia and prevention of hypotension during and after the surgical intervention, the results appear to be excellent. Arterial wounds and skin incisions in such patients have healed rapidly, and usually hospitalization has not been required longer than 14 to 18 days. The current surgical approach to serious vascular disease, a palliative one in the over-all problem of the treatment of arteriosclerosis, has a significant part to play in the attempt to prolong the life of patients in a manner permitting maximum usefulness of all their faculties.

Repair of Injury to the Common Bile Duct: Results in 69 Cases. G. L. Hoffman and G. Crile Jr. Cleveland Clin. Quart. 25:126-132 (July) 1958 [Cleveland].

Between 1950 and 1955, 89 operations for injured bile duct were performed at the Cleveland Clinic Hospital, of which 69 (performed on 58 patients) were classed as reparative. Of the 69 reconstructive procedures, 21 were hepaticoduodenostomies; 19 were simple dilatations with insertion of a T-tube; 12 were end-to-end anastomoses; 7 were hepaticojejunostomies; 5 were Roux-Y procedures; and 5 employed either a Vitallium-tube prosthesis, a skin grafting, or the Grindlay procedure. The best results were obtained in the first group (hepaticoduodenostomy), in which 18 patients were classified as having obtained good results—feeling well with no chills, fever, or jaundice. Two of the 3 patients in the first group, in whom operative results were not good and who had intermittent symptoms of cholangitis without jaundice, subsequently underwent gastric resection (Billroth 2) to exclude the biliary tract from the direct alimentary flow. The remaining procedures produced satisfactory results in less than 60% of the cases. The simplest approach to the damaged bile duct is through a subcostal incision, dissecting the undersurface of the liver from right to left. Fine chromic catgut is the suture material of choice. The most acceptable type of internal splint is the standard T-tube which, whenever possible, should be brought out through a separate opening and not through the anastomotic line, as is done when the stump of the proximal part of the duct is short.

Clinical Experiences with the Surgical Treatment of Acquired Aortic Vascular Disease. O. Gwathmey, H. C. Pierpont and B. Blades. Surg. Gynec. & Obst. 107:205-213 (Aug.) 1958 [Chicago].

A series of 53 patients with a variety of aortic vascular lesions treated during the past 4 years is reviewed in an attempt to correlate the authors' earlier impressions concerning the restoration of the aorta with more recent concepts. A total of 14 aneurysms involved all or part of the aortic arch. Syphilis was the etiological agent in 6, atherosclerosis in 3, and trauma in 3, the agent being undetermined in 1. The following adjunct techniques were used: hypothermia, staged segmental occlusion, and extracorporeal circulation. Three of the 14 were classified as emergency cases. Homologous freeze-dried grafts were used in 8 cases, while 2 cases required only aneurysmorrhaphy; 3 patients died prior to the grafting stage, and 1 patient was considered inoperable. There were no late complications in this group. Four patients were discharged as improved and are at present alive and well at 45, 44, and 30 months and 2 weeks after the operation. There were 3 delayed complications, and 7 cases were classified as immediate complications. There were 3 cases of aneurysm of the descending thoracic aorta—2 fusiform and 1 saccular lesions. A homologous and Vinyon "N" graft was used in 1 case, and Vinyon "N" and Orlon grafts were implanted in the other 2 cases. Hypothermia was used as an adjunct technique in 2 cases, and the aorta was cross-clamped under normothermic conditions in the other case. There were 2 late complications in this group and 1 immediate complication.

Thirty-seven patients with acquired lesions of the abdominal aorta were operated on. Thirty-two of these lesions were true aneurysms, all of them being basically fusiform in type but having saccular components superimposed. The etiological factor prevailing throughout the entire group was atherosclerosis. Thirty-five patients had resection of the diseased aortic segment with grafting. The only adjunct technique was hypothermia, which was used in 1 case only. Five types of grafts were used —homologous, Dacron, nylon, Orlon, and nylon crimp. Approximately 86% of the 35 abdominal lesions were aneurysms, the remaining 14% being due to thrombo-occlusive disease. In the elective group of 16 aneurysms there were only 3 complications (1 immediate, 1 delayed, and 1 late), in contradistinction to the 14 complications (4 immediate, 9 delayed, and 1 late) in the emergency group of 16 cases. In the 5 cases of thrombo-occlusive disease there were 3 immediate complications and 1 delayed complication. Thrombosis occurred in all 3 patients of the immediate group who underwent reexploration with reestablishment of circulation and required still a third procedure. Thrombosis as a complication in abdominal grafts occurred more frequently in thrombo-occlusive disease than in aneurysmal lesions.

Multiple Epiphysial Dysplasia. H. Barrie, C. Carter and J. Sutcliffe. Brit. M. J. 2:133-137 (July 19) 1958 [London].

Fairbank defined multiple epiphysial dysplasia as "a rare developmental error characterized by mottling or irregularity in density and outline of several of the developing epiphyses, dwarfism, and stubby digits." Symptoms invariably begin in childhood, the youngest recorded case being that of a 19-month-old infant. In the present series the ages ranged from 2 to 71 years. The most prominent symptoms are joint pain and stiffness with a variable degree of disability. Since the lesions are multiple rather than generalized, symptoms predominate in specific joints, the hip and knee joints being the most commonly affected as they are the most liable to weight-bearing strain. The distribution of symptomatically involved joints does not necessarily parallel the roentgenographic distribution, which is more often than not severest in the epiphyses of the wrist, hands, and ankles. The degree of disability varies from slight discomfort to marked impairment of function, and although the changes in the epiphyses are permanent, the symptoms are characteristically transient and fluctuating. Osteoarthritis is an inevitable complication, and severe hip trouble may cause difficulty in natural childbirth. Similar symptoms and signs as well as roentgenographic features prevail in affected members of the same family. The familial pattern suggests that dominant genes are responsible for all examples of the disorder, although more than one mutation would seem to be necessary to explain the differing degrees of severity in different families. Patients who receive physical therapy early in life are afforded considerable relief at the time and subsequently develop less disability.

A New Therapeutic Concept of the Exstrophied Bladder. C. S. Snyder. Plast. & Reconstruct. Surg. 22:1-10 (July) 1958 [Baltimore].

The author reports on 2 boys, aged 1 year and 6 months, respectively, who were operated on for exstrophy of the urinary bladder. The intestinal tract was prepared with a combined sulfo-neomycin medication 3 days before the surgical intervention, and enemas were given 2 days before the operation. With the aid of general endotracheal anesthesia, the abdomen, perineum, buttocks, and thighs were surgically cleansed and aseptically draped. A catheter was placed in each ureter. The bladder was dissected from the abdominal wall, isolating the ureters and preserving the vesical blood vessels. The rectum was elevated from the posterior part of the pelvic wall, and a site of transection was selected 2 in. above the anal outlet. A fenestration was made in the posterior part of the bladder wall between the ureters, and the distal end of the rectal segment was coapted to it with 2 layers of sutures. The ureteral catheters were brought through the anal orifice by way of the new urinary rectal receptacle. An incision was made posterior to the anal outlet but within the external and internal anal sphincters. The proximal end of the rectal segment was pulled through the levator ani sling and within both anal sphincters. It was sutured to its recipient site, leaving a redundancy of intestine present externally. The bladder was closed over an indwelling catheter which was brought through the abdominal wall. The abdomen was closed in layers without tension. Each patient lost approximately 150 cc. of blood, which was replaced during the operative procedure. On the second postoperative day the ureteral catheters were removed, and the next day the remaining indwelling catheter was extracted. Both patients had uneventful recoveries.

The fact that due to this operation the urinary stream is completely separate from the fecal discharge is of definite advantage, as it eliminates ascending renal infection which has been the most common complication of operative procedures previously in use. There is no problem of ureteral obstruction at a site of anastomosis, because the ureters are left intact to empty their contents as they should into the bladder. The patients of this report have been followed for 1 year postoperatively, and no complications have occurred to give reason that these 2 boys operated on for bladder exstrophies should not enjoy a normal life expectancy. Two other patients have been operated on since the author's paper was submitted for publication, and both are doing well. Follow-up intravenous pyelograms have illustrated normal functioning genitourinary tracts.

Operations for Extreme Mitral Stenosis in Patients over 45 Years of Age: Preoperative and Postoperative Study of 35 Cases. P. Soulié, F. Joly, P.-E. Gareau and P. Corone. Arch. mal. cœur 51:616-625 (July) 1958 (In French) [Paris].

The authors report on 26 women and 9 men, between the ages of 45 and 54 years, with extreme mitral stenosis in that the mitral orifice was reduced to a cross sectional area 1 sq. cm. or less. Although all the patients had had moderate dyspnea on effort for a prolonged period varying from 2 to 20 years, their activity was hardly impaired until the clinical and hemodynamic symptoms of mitral narrowing became much more severe after the age of 40. Pulmonary edema on effort or subacute edematous attacks were observed in 31 patients. Hemoptysis occurred in 11 patients, and bloody sputum was observed in 6. Pulmonary embolism occurred in 7 patients and other systemic embolic attacks in 5. Complete arrythmia was noted in 20 patients. Signs of overload on the right ventricle were revealed by the electrocardiograms obtained from 31 patients. The volume of the heart was increased in 23 patients, and the pulmonary arteries were dilated in all the patients. The pressure in the pulmonary capillaries varied between 20 and 30 mm. Hg. The pressure in the pulmonary arteries also was increased; the systolic pressure varied between 80 and 140 mm. Hg in 12 patients, and the average pressure was above 50 mm. Hg. Commissurotomy was performed with the knife on 24 patients and by digital fracture on 11. Three patients died, 2 of ventricular fibrillation in the course of surgical intervention and 1 of cardiac decompensation 3 months after the operation.

The 32 patients who survived the operation were followed for 9 to 24 months. Functional disturbances subsided in varying degree in almost all of them. Pulmonary edema disappeared and hemoptysis did not occur. Dyspnea on effort was completely absent in 13 patients, nearly completely in 10, and partly in 9. Postoperative electrocardiographic changes were studied in 27 patients. Four of these had not shown preoperatively signs of overload on the right ventricle, and their postoperative electrocardiograms were not changed. Of the remaining 23 patients, the condition of 19 was improved in that there were less signs of overload on the right ventricle, and only 4 were not improved. Most improved were those in whom the preoperative overload on the right ventricle had been most pronounced. Of 15 patients who underwent catheterization postoperatively, the pressure in the pulmonary capillaries was reduced by 12 to 20 mm. Hg in 10 and by 7 to 10 mm. Hg in 3; the pressure in the pulmonary arteries also was reduced in all these patients, and it was restored to normal in 3. Two patients did not show hemodynamic improvement because of a systolic reflux which had become more pronounced.

These observations show that the results of commissurotomy, performed on patients in the 5th and 6th decades of life when moderate mitral narrowing has become more severe, remain satisfactory. It might be that the operative risk is somewhat greater and that complete regression of the hemodynamic and electrocardiographic symptoms may occur less frequently than in younger patients, but the differences are not significant. Such patients should, therefore, not be denied surgical intervention because of their advanced age alone.

NEUROLOGY & PSYCHIATRY

Pelizaeus-Merzbacher Disease: A Clinical Study. H. R. Tyler. A. M. A. Arch. Neurol. & Psychiat. 80:162-169 (Aug.) 1958 [Chicago].

The author reports the cases of 3 Negro boys, between the ages of 9 and 16 years, with a slowly progressive hereditary form of cerebral diplegia characterized by early development of nystagmus, ataxia, and spasticity. The 3 patients were brothers and belonged to a large family in which 27 members in 7 generations were affected with this disease in a fairly stereotyped and predictable manner. The disease was always transmitted through an unaffected female, and the affected male never reproduced. No female member with the disease was known. If the male was not affected, then his children, including the daughters, did not reproduce the disease. About 50% of the females had affected children, but the cases of the 3 boys were the only definitely known ones. Other members of the family called these affected persons "head nodders" and "eye waggers." The condition was usually observed about 8 to 10 days after birth, and sometimes as late as 3 months. The parents noted that the eyes were constantly moving and that the head was moving in a repetitive side-to-side tremor. The children were hypotonic and rarely learned to sit or stand. Placing reactions were usually lost by 18 months of age. Some of the patients could propel themselves by a peculiar writhing, snake-like motion of the body, with head held extended. This was the only demonstration of a righting reflex noted. By the age of 3 to 6 years, kyphoscoliosis, spasticity in the lower extremities, athetosis, intention tremor, and slight regression in the mental state were noted. The upper extremities became slightly spastic by the age of 10 to 12 years. Thin arms and legs were noted in some members of the family. The rate of progression of the disease seemed to become slower and slower with each year until it appeared almost as though, in some of the older affected persons, it occasionally became stationary. Most of the patients died of intercurrent infections in early years. One lived to 51 years of age.

The symptoms of the patients in this study were those of diffuse sclerosis of the subcortical white matter, which were first described in 14 members of a family by Pelizaeus and Merzbacher, after whom the disease has been named. The only points of difference between the 2 families with this rare hereditary disease were that the pattern of onset of symptoms appeared more rigid in Tyler's patients, that none of the female members were affected in contrast to 2 females in the original family, and that remissions were less obvious in the original family. The early development of nystagmus and other brain-stem signs distinguishes the illness from the familial forms of Schilder's disease (progressive subcortical encephalopathy) and metachromatic leukoencephalopathy.

Lobotomy: A Fifteen-Year Study. A. McCausland and D. M. Wickware. Canad. M. A. J. 79:168-170 (Aug. 1) 1958 [Toronto].

Two hundred patients who had been subjected to a standard bilateral lobotomy have been followed for 3 to 15 years. The age range of the patients, 146 females and 54 males, was from 18 to 77 years, the greater number of patients falling in the 30-to-59-year age group. The average length of time from onset of illness to operation was 143.6 months, while the total hospital stay prior to operation averaged 47 months. The mortality rate to date for the entire series of 300 cases has been 0.3%. Schizophrenia accounted for a greater proportion of failure and a correspondingly lesser degree of improvement than did manic-depressive psychosis. The results for involutional melancholia and schizoaffective psychosis cannot be accurately assessed because of the small number of patients in these groups. Classification by age group indicates that results were better for patients in the 40-to-59-year age group and less favorable for the 20-to-39 and 60-to-70-and-over age groups. The latter results would seem to reflect the preponderance of schizophrenic disorders in the 20-to-39-year age group.

Anorexia Nervosa: A Somatic Disorder. E. Williams. Brit. M. J. 2:190-195 (July 26) 1958 [London].

The author reports on 53 female patients, between the ages of 12 and 40 years, with anorexia nervosa who were admitted to the London Hospital; 49 were admitted between 1897 and 1953, and 4 between 1953 and 1957. Marked weight loss and amenorrhea were present in all. Despite extensive investigation, none showed evidence of primary organic disease. The patients were hospitalized for periods ranging from 7 to 130 days, except one patient who was comatose on admission and who died the next day. Few patients were confined to bed, and for most of them no special diets were prescribed. Renourishment of 7 patients was accomplished by feeding with the stomach tube, and in these patients the immediate results were so good that on discharge each had gained, on the average, 22 lb. (10 kg.). Of the 46 patients who were not treated with intubation, 7 gained more than 14 lb. (6.4 kg.) in weight while in the hospital, but the weight was restored to normal in only 5 of these. The other 39 patients in this group gained, on the average, only 9 lb. (4.1 kg.) per patient.

Seven of the 53 patients who were treated for anorexia nervosa were lost to follow-up. Of the 46 patients who were followed, 10 have died, 3 have not improved, 6 have improved, and 23 have completely recovered. It is still too early for an evaluation of the 4 patients who were admitted after 1953, but they have all been treated with intubation which is the most effective in-patient treatment. The deaths of 8 of the 10 patients who died resulted solely from malnutrition. Other patients who were just as severely undernourished recovered spontaneously after having been refractory for a varying number of years. They resumed eating of their own volition, mostly after their environment had deliberately or accidentally been changed.

Promising Results in Cryptococcal Meningitis. H. Rubin and M. L. Furcolow. Neurology 8:590-595 (Aug.) 1958 [Minneapolis].

The authors report on their experience in the treatment of 10 cases of cryptococcic meningitis with Amphotericin B. Cryptococcus neoformans was isolated from the spinal fluid of all the patients and from the skin lesions of 2 patients. The pathogenicity of all isolated strains was confirmed by the demonstration of capsule formation and growth of budding yeast forms at 37 C; 9 of the 10 isolated strains were also shown to be pathogenic for mice, with the development of hydrocephalus after cerebral inoculation. Amphotericin B was administered intravenously to all the patients in doses ranging from 50 to 100 mg. for a total dose of 1.4 to 3.7 Gm. Eight of the 10 patients are alive at follow-ups ranging from 2 to 14 months. In the 2 fatal cases both patients were comatose and moribund before treatment and never regained consciousness. Two of the surviving patients are pursuing normal activities and have normal spinal fluids which have remained sterile upon repeated culture; 3 patients have shown clinical improvement with either normal or improved spinal fluid indexes; 1 patient has remained stable in spite of previous long-standing central nervous system disease; and 2 patients have suffered relapses. Toxic side-reactions to Amphotericin B have been minimal, although therapy was suspended in one patient because of symptoms ascribed to liver toxicity. Chemical phlebitis occurred. Fever, chills, and nausea sometimes accompanied the initial intravenous infusion but were diminished or avoided by premedication. The most promising finding, upon evaluation of therapy, is the consistent sterility of the spinal fluids in 7 of the 8 surviving patients.

Intracranial Hemorrhage in Cerebral Arteriovenous Anomalies. M. W. Wood and H. J. Svien. A. M. A. Arch. Neurol. & Psychiat. 80:170-172 (Aug.) 1958 [Chicago].

Of 51 patients with cerebral arteriovenous anomalies which were revealed either at surgical intervention or by angiography at the Mayo Clinic, 16 patients, 8 male and 8 female, between the ages of 6 and 60 years, had 20 attacks of subarachnoid hemorrhage. The average age at the time of hemorrhage was 31 years. Three of the 16 patients had more than 1 attack of bleeding, 1 having 3 attacks and 2 having 2 attacks each. In all 20 episodes the patients had severe headache at the onset, and nausea and vomiting appeared early in about two-thirds. The patients were unconscious in 8 of the 20 attacks of hemorrhages, and in 2 of the 8 for less than 1 day. Recovery occurred in 6 of the 8 instances, but 2 patients died during the hemorrhage. Seven patients had no definitive surgical treatment for their lesions. The 2 deaths from subarachnoid bleeding which occurred in this group gave a mortality rate of 12.5% for the entire series, which was about the same as that reported by other workers. No bleeding recurred for 7 to 16 years in the other 5 patients who were not surgically treated for their lesions. Of these 5 patients, 3 have no residual paralytic or speech defects, but 2 have some degree of residual hemiparesis. Nine of the 16 patients were treated surgically. No deaths from bleeding occurred in this group, but 4 of these patients have had attacks of subarachnoid bleeding since operation.

Although this group of 16 patients with intracranial hemorrhage is small, certain characteristics of bleeding from arteriovenous anomalies can be deduced as follows. The bleeding from a cerebral arteriovenous anomaly is not nearly as fulminating as that from a cerebral aneurysm; bleeding from an arteriovenous anomaly is not nearly as likely to be fatal as that resulting from a ruptured cerebral aneurysm. Residual neurological deficit is neither frequent nor often profound.

It is generally conceded that subarachnoid bleeding from a cerebral aneurysm is an indication for surgical treatment in patients who survive the initial attack and in whom such factors as age are not contraindications. Subarachnoid bleeding from an arteriovenous anomaly does not have the same ominous connotation as that resulting from a cerebral aneurysm. Hence, one must be cautious in considering subarachnoid bleeding from an arteriovenous anomaly as an indication for surgical removal of the lesion. Another reason for caution is the appreciable operative mortality rate. Furthermore, even though total excision is thought to have been accomplished at operation, long-term follow-up observations may prove this to be untrue, leaving the same set-up for bleeding as before. It should be kept in mind that the residual neurological deficit in most of the surgically treated patients is bound to be appreciable because of the frequent location of the anomaly in the vicinity of the Sylvian and Rolandic fissures.

GYNECOLOGY & OBSTETRICS

Progesterone-Induced Withdrawal Bleeding as a **Simple Physiologic Test for Pregnancy.** G. E. Hayden. Am. J. Obst. & Gynec. 76:271-278 (Aug.) 1958 [St. Louis].

The author presents a study on the differentiation of early pregnancy from secondary amenorrhea of short duration. The use of progesterone as a diagnostic and a therapeutic agent in the management of amenorrhea has been evaluated, and the application of progesterone-induced withdrawal bleeding as a diagnostic test for pregnancy has been employed in 102 women whose ages ranged from 18 to 35 years. The patients were selected only on the basis of previously regular menstrual periods and the distinct possibility that a conception had occurred. They were amenorrheic for 35 to 70 days. Forty-four patients were given anhydrohydroxyprogesterone orally in a dose ranging from 200 to 400 mg. per day for 4 or 5 days. In 43 patients progesterone, U.S.P., was administered vaginally in a dose ranging from 75 to 250 mg. per day for 4 or 5 days, and in 15 patients 17-alpha-hydroxyprogesterone caproate was injected intramuscularly in a dose ranging from 125 to 500 mg. per day for 2 to 5 days. Sixty-four patients failed to respond, and pregnancy was confirmed in each instance. All the pregnancies continued uneventfully, and normal-term infants resulted. In 38 patients withdrawal bleeding occurred. In 23 (85%) of 27 patients who had received progesterone preparations either by mouth or vaginally, the onset of withdrawal bleeding occurred between the 3rd and the 7th day from the day of cessation of medication. In 8 (72%) of 11 patients to whom the progesterone preparation had been administered intramuscularly, the onset of withdrawal bleeding occurred between the 8th and the 14th day; in 1 patient the onset occurred even on the 16th day. Thus, the oral or vaginal mode of administration may be preferred to the intramuscular route. The amount and duration of bleeding could not be correlated with the mode of administration or amount. No alteration in the course of pregnancy was noted with either standard or excessively large dosage. Of 36 patients on whom follow-up examinations were carried out, 26 (72%) returned to normal menstrual cycles, and no further evaluation or therapy was indicated or needed. Two patients were lost to follow-up. Thus, because of its diagnostic as well as its therapeutic value, progesterone may be used even more extensively in patients with the brief or functional type of amenorrhea.

Current Treatment of Carcinoma of the Cervix. H. L. Kottmeier. Am. J. Obst. & Gynec. 76:243-251 (August) 1958 [St. Louis].

According to Kottmeier, the intracavitary radium treatment for carcinoma of the cervix must be individualized. Thus, the radium application in a patient with a narrow vagina should be quite different from the application in a patient with a large vagina; the intrauterine application of radium is to a much greater extent responsible for the dosage in the paracervical tissue and in the pelvic nodes than is the vaginal application of radium, and the contrary is true as far as the paravaginal spread of the cancer is concerned. This applies to cases of endocervical carcinoma or to those with a paracervical spread of the neoplasm. The intrauterine dose of radium should be considerably increased in such cases and the vaginal dose decreased. Thus, in a case of endocervical carcinoma, stage 1, the application of radium should be quite different from that in a case of disk-shaped carcinoma in the part of the uterine cervix which protrudes into the vagina.

The current individualized technique was started in 1949 at the Radiumhemmet in Stockholm. The treatment time was determined in the individual case by a direct reading of the dosage in the posterior wall of the bladder and the anterior wall of the rectum. A small ionization chamber contained in a curved probe was inserted first in the bladder and then in the rectum to a depth of 14 cm. With the probe in the midline and with gentle pressure on the wall, it was slowly withdrawn, and the dosage rate at each centimeter of distance was recorded. With the high intensity used, the optimal dose in the bladder was about 5,500 gamma r and in the rectum 4,000 gamma r, provided that attention was given to the dosage in an area of 3 cm. or more. A higher dose would increase the risk of proctitis or bladder damage. Overradiation of normal tissue should be avoided. Fractionated irradiation was preferable.

In uncomplicated cases, the intracavitary application was divided into 2 treatments, with an interval of 3 weeks. In infected cases, it was expedient not to apply the intrauterine and vaginal doses of radium simultaneously. In cases of endocervical carcinoma, of spread of the cancer to the paracervical tissue, and of pelvic lymph node metastases, an increase in the intrauterine dose was desirable. This might be realized by an increase in the time the radium was left in place or by an increase in the amount of radioactive material applied. From 100 to 200 mg. of radium was inserted into the uterine cavity, depending on the length of the sound. The diameter of the applicator was increased in order to avoid necrosis in the uterine wall. The application was controlled by the probe inserted into the rectum. It was preferable not to exceed a dosage of 2,500 gamma r in 24 hours to the anterior wall of the rectum and, furthermore, not to give external radiotherapy immediately after such an application. Additional roentgentherapy was given to the pelvic wall of every patient from 2 anterior and 2 posterior portals. The dosage ranged from 2,000 to 2,400 r in 24 to 32 days, although sometimes it was desirable to increase the dose to the pelvic wall. Prior to this additional therapy, however, a urovenogram was required for the purpose of obtaining information on pelvic anatomy. The marked improvement in the results obtained with this type of therapy supports the importance of individualization.

One thousand eighty-one patients were treated in Stockholm during the 3 years from 1949 to 1951. The oldest patient was 96 years of age, with a stage 1 carcinoma. Fifty-three patients were 30 years of age or younger. Palliative radiotherapy, i. e., one radium treatment or a few x-ray treatments, was given in 7.4% of the cases. Radical hysterectomy was carried out later in 43 cases of persistent or recurrent carcinoma, and fulguration was performed in 83 cases. The 5-year apparent recovery rate was 89.0% in stage 1, 64.4% in stage 2a, 45.2% in stage 2b, 33.5% in stage 3, and 7.8% in stage 4. Since 1949 a case has been allotted to stage 4 only if invasion of the bladder or rectum was proved histologically or distant metastases were present. Thus, the average 5-year cure rate was 51.1%, as compared with an average 5-year cure rate of 42.3% among patients treated between 1936 and 1945 and of 42.5% among those treated between 1946 and 1948.

The Importance of Highly Purified Bacterial Lipopolysaccharides for the Therapy of Inflammatory Diseases of the Adnexa. H. Fricke, V. Probst and G. Schumacher. Schweiz. med. Wchnschr. 88:691-698 (July 12) 1958 (In German) [Basel, Switzerland].

Whereas in the past vaccine preparations were chiefly used in nonspecific fever therapy, the authors are concerned with the use of the highly purified lipopolysaccharide Pyrexal that is extracted from Salmonella abortus equi. The preparation is free from protein and nucleic acid and consists largely (60%) of sugars and (40%) of lipids (lipid A). An intravenous injection of 0.1 to 0.2 mcg. of

Pyrexal produces a temperature increase of from 1 to 2 degrees (C). The temperature elevation appears after a latent period of 1 or 2 hours and subsides again from 6 to 8 hours after the injection. The pyrogenic threshold dose is the intravenous injection of 0.002 to 0.003 mcg. per kilogram of body weight. The fever-inducing effect gradually decreases after repeated injections, and so it becomes necessary to increase the dose gradually to insure the same effect. Pyrexal induces leukocytosis, activates fibrinolysis, and increases the serum properdin twofold to threefold.

The authors demonstrate on the basis of clinical studies that the intravenous administration of bacterial lipopolysaccharides produces excellent therapeutic results in the treatment of adnexitis. A comparison of the results obtained in 50 patients who were treated with the lipopolysaccharide Pyrexal with those obtained in 385 patients who were treated with the customary conservative methods demonstrated not only that the over-all results in acute and chronic cases were better with the intravenous fever therapy but that, in contrast to experiences in earlier years, patients treated during the acute and the subacute stage have better chances of recovery. In view of the anatomic and topographic peculiarities of the involved adnexa (small organ—large peritoneal surface) with extensive fibrinous exudates, adequate treatment of the inflammatory masses seems to depend on increase in resistance, on stimulation of the properdin system, on activation of the reticuloendothelial, leukocytic, and anterior-pituitary/adrenocortical systems, and particularly on the stimulation of fibrinolytic processes. The uniform course of the reaction that can be expected regularly after the intravenous injection of highly purified bacterial lipopolysaccharides greatly facilitates their clinical use. Side-effects usually take the form of headaches that can be readily controlled by suitable drugs. The occurrence of painful reactions at the site of the inflammation may be employed for differentiating adnexitis from tumors of the adnexa.

Treatment of Functional Uterine Bleeding with 17-Alpha-Hydroxyprogesterone Caproate (Efficiency and Limitations of Therapy). H. Zorn. Geburtsh. u. Frauenh. 18:924-933 (July) 1958 (In German) [Stuttgart, Germany].

The author reports on 224 female patients with functional uterine bleeding who were treated with a mixture of estradiol benzoate, estradiol valerate, and 17-alpha-hydroxyprogesterone caproate given parenterally. One hundred thirteen patients were admitted to the gynecologic clinic of the City Hospital in Berlin-Friedrichshain, Germany, and the remaining 111 patients were treated ambulatorily. Thirty-five of the 224 patients were immature girls, 35 were mature women, and 154 were at the termination of their reproductive period. Sixty-two patients received 125 mg. of hydroxyprogesterone caproate and 10 mg. of estradiol benzoate, 60 patients received 250 mg. of hydroxyprogesterone caproate and 10 mg. of estradiol benzoate, 24 patients received 375 mg. of hydroxyprogesterone caproate and 10 mg. of estradiol benzoate, 58 patients received 250 mg. of hydroxyprogesterone caproate and 10 mg. of estradiol valerate, and 20 patients received 250 mg. of hydroxyprogesterone caproate, 10 mg. of estradiol benzoate, and 10 mg. of estradiol valerate. Independently of the duration of bleeding before treatment and independently of the dosage employed, primary hemostasis was obtained within 24 to 36 hours as a rule, and within 48 to 60 hours at the latest, in 209 women (93.3%). The treatment failed in 5 patients, and in 7 additional patients bleeding was arrested later with conservative measures. Three women were lost to follow-up and were also considered as failures. Definitive arrest of bleeding without withdrawal bleeding occurred in 4 women, between the ages of 41 and 51 years; it may be assumed that an exclusive estrogen effect was exerted on an almost exsanguinated mucosa in these 4 patients. Withdrawal bleeding occurred in 201 patients within 10 days, on the average, and its course was uneventful in 189 (84.3%). Further intervention was not required. The withdrawal hemorrhage lasted, on the average, for 8 days. Failure of the treatment nearly always indicated an organic endometrial disorder as the cause of the hemorrhage.

Thirty-five women with histologically proved organic disorders, such as polyps of the uterine cervix or the body of the uterus, endometritis, and inflammatory processes of the adnexa associated with bleeding, were given the same treatment as the patients with functional bleeding. Arrest of bleeding occurred for a short time in 18 patients and was followed by withdrawal bleeding in some of them; the latter often was severe and prolonged. Administration of large doses of 17-alpha-hydroxyprogesterone caproate not only delayed the onset of withdrawal bleeding by 4 to 6 days but also markedly reduced the blood loss. With combined administration of 17-alpha-hydroxyprogesterone caproate and long-acting estradiol valerate, there was a delay before the hemostatic effects became manifest, but withdrawal bleeding was shortened by 2 or 3 days. The delay in the hemostatic effect may be prevented by the combined administration of estradiol benzoate and estradiol valerate with 17-alpha-hydroxyprogesterone caproate. Although treatment with the estradiols and 17-alpha-hydroxyprogesterone caproate had beneficial effects in patients over 45 years of age, the author cautions against its routine use in these patients unless microscopic examination has excluded the possibility of carcinoma. Recurrent hemorrhages were observed in 5 (6.2%) of 89 patients who were followed up for more than 6 months after the treatment. Judged by this incidence of relapses, hormonal therapy does not appear to be inferior to surgical procedures in the treatment of functional uterine bleeding.

Prognosis in Acute Renal Insufficiency Originated After Delivery. J. H. Thaysen, S. Gjørup and O. Munck. Ugeskr. læger 120:899-905 (July 10) 1958 (In Danish) [Copenhagen].

The prognosis for patients with acute renal insufficiency depends partly on the nature of the basic disease and partly on the duration and degree of severity of the complicating uremia. Reports from dialysis centers in Denmark emphasize that the high lethality in patients with acute renal insufficiency is almost entirely to be ascribed to the basic disease which causes the renal insufficiency. The prognosis for uncomplicated renal insufficiency is relatively good, even with uremia of long standing. Report is given on 9 women with acute renal insufficiency post partum, admitted to date in the dialysis section of the medical division of the Rigshospital. The basic disorder was in most cases reversible. The prognosis in such cases depends almost wholly on the treatment of the uremia. One patient with bilateral renal cortical necrosis died; after 51 days of conservative and dialytic treatment no restitution of renal function had resulted. In several of the survivors the reduction of renal function was prolonged. Combined conservative and dialytic treatment has changed the prognosis for acute renal insufficiency. Further reduction of the mortality in patients with acute renal insufficiency must first of all depend on active treatment of the basic disease when it continues to dominate the picture and threatens life. Only hemodialysis affords the possibility of bringing the patients into such a condition that this treatment can be carried out. All patients with acute renal insufficiency, irrespective of the character of the basic disease, should be transferred to a dialysis section as soon as possible.

Listerosis in Mother and Child. O. Kranendonk. Nederl. tijdschr. geneesk. 102:1202-1206 (June 21) 1958 (In Dutch) [Amsterdam].

The first-born child of a woman, who had felt "grippy" some weeks before delivery, appeared healthy until the 4th day of life. Then the infant refused to drink, an exanthem was observed, and the head was bent backward. Spinal puncture yielded fluid containing some erythrocytes, and some slender, gram-positive rods were observed. Colonies of a bacterial organism grew in a culture of the spinal fluid. Intraperitoneal injection of the culture into mice resulted in death of the animals after from 1 to 4 days, and focal necroses were seen in the livers of the mice. The strain of the injected organism could be cultured from the livers and the heart-blood of the animals. The organism was identified as Listeria monocytogenes. Studies on the mother revealed that she harbored L. monocytogenes in the vagina 10 days and 3 weeks after delivery. The strain isolated from the mother was serologically identical with that cultured from the spinal fluid of the newborn infant. It is suspected that the mother was infected by a pet dog which some weeks before delivery had had fever and a stiff neck, although its sickness was not bacteriologically studied. Literature reports are cited to prove that more attention is being paid to L. monocytogenes as a pathogenic agent in man and in animals.

Staphylococcal Infection in Mothers and Infants: Maternal Breast Abscesses and Antecedent Neonatal Sepsis. J. A. Monro and N. P. Markham. Lancet 2:186-190 (July 26) 1958 [London].

Most epidemics and sporadic infections have been caused by antibiotic-resistant strains of staphylococci belonging to the phage-type 80/81, which are now firmly entrenched and widely distributed in New Zealand. Thirty-seven cases of maternal breast abscess developing in the weeks after childbirth and known to have followed confinement in maternity homes were investigated. Of the 37 patients, 31 required hospital admission for incision and drainage, and in 32 patients bacteriological investigations were carried out. Coagulase-positive staphylococci were obtained from 31 of the 32 patients investigated, 24 of the strains being identified as phage-type 80/81 and 21 exhibiting a characteristic antibiotic-sensitivity pattern. The time of onset in 23 of the 33 abscesses was between 2 and 4 weeks after confinement, although no relationship in time was discernible regarding the advent of or any change in lactation. A history of cracked nipples (14) in the mothers or infection (25) in the infant or both was forthcoming from 27 of 29 patients interrogated. Antibiotics given to 22 patients afforded them no relief, and in no case did antibiotics facilitate remission, once a mass was formed. Both breasts were affected in 5 patients, and 16 patients required incision on 2 or more occasions. While the strain of the organism from the abscess was isolated from the mother's nose on only 2 of 12 occasions, the "abscess strain" was carried by the infant in almost all the cases studied. This same strain was isolated from the breast milk in almost half of the patients examined. The incidence of staphylococcic skin lesions has been reduced from 11 to 6% since the introduction of new nursing techniques. No frank examples of umbilical sepsis were encountered. The proportion of nursing and other hospital staff personnel carrying coagulase-positive staphylococci varied between 22 and 48%, the proportion of penicillin-resistant carriers remaining at about 70%. Similar figures were obtained from the medical staff. The over-all maternal carrier rate of coagulase-positive staphylococci ranged from 30 to 36%; however, the incidence of penicillin-resistant strains among the mothers (35%) was half that among the nurses. No coagulase-positive staphylococci were isolated from the dust and air samples taken from the nurseries and theaters in one hospital, although in another older institution 9 of 43 specimens were positive, 2 being identified as phage-type 80/81. The authors conclude that a nursery may be "seeded" with staphylococci from a nasal carrier among the staff and that a nursery "reservoir" of staphylococci may persist by hand or air transfer from infant to infant.

The Indications for Conservative Therapy for Intraepithelial Carcinoma of the Uterine Cervix. J. S. Krieger and L. J. McCormack. Am. J. Obst. & Gynec. 76:312-320 (August) 1958 [St. Louis].

The authors report on clinical observations made between 1950 and 1957 at the Cleveland Clinic Hospital on 114 patients in whom the diagnosis of cervical carcinoma in situ had been established. The cervical smear was used for the clean, normal-appearing cervix, and the cervical smear and multiple biopsies were used for the abnormal cervix. Sixty-five of the 114 patients were first suspected of having carcinoma in situ from routine cervical smears; diagnosis was established in 28 patients by means of smear and biopsy; in 21 patients with a concomitant disease diagnosis of carcinoma in situ was made incidentally. Until late in 1951 the treatment for cervical intraepithelial carcinoma was total hysterectomy performed within 6 weeks after diagnosis by conization had been made. Since 1952 the treatment of choice, in the absence of other diseases that may require hysterectomy, has been radical conization. To assess the adequacy of the conization, it should be followed up by systematic cytological examination if the lesion is noninvasive in the conization specimen, if the cervix remains patent after conization, and if repeated smears remain negative. Hysterectomy is reserved for those patients in whom cervical smears remain positive after conization, the cervix closes and renders smears unreliable, or other major uterine disease is present. Radical conization was carried out in 65 of the 114 patients; in 30 conization followed by hysterectomy or trachelectomy was performed; in 10 hysterectomy was done after biopsy, and in 2 hysterectomy only was performed; 2 patients received radium therapy, and 5 were not treated after consultation. Of the 65 patients with radical conization, 4 were lost to follow-up, and 61 were followed for 6 months to 7 years; cervical smears have been negative repeatedly in all but 2 patients. Of the 30 patients who underwent hysterectomy or trachelectomy after the conization, 26 had no residual disease in the excised cervix, and 4 had evidence of persistent carcinoma in situ. The hysterectomy had been performed in 3 of the latter patients because of the evidence of unusually extensive disease in the conization specimen. These data suggest that hysterectomy is not a therapeutic necessity in treating cervical carcinoma in situ. Treatment can be individualized and is usually limited to radical conization with systematic cytological follow-up.

Occurrence and Significance of Free Tissue Fluid in the Female Mammary Gland. M. Ratzenhofer. Geburtsh. u. Frauenh. 18:893-906 (July) 1958 (In German) [Stuttgart, Germany].

Under physiological conditions, such as the menstrual cycle and particularly during pregnancy, the interlobular, collagenous, supportive tissue of the mammary gland contains microscopically demonstrable amounts of free interstitial fluid (tissue fluid) rich in protein. The amount of the fluid was found to be considerably increased to a macroscopically recognizable edema of the breast in women with painful swelling of the mammary glands, in those with mammary fibrosis, and in those with chronic fibrous mastopathy. Increased amounts of this interstitial fluid in the connective tissue were also observed in patients with cancer of the breast and associated fibrous mastopathy and particularly in women with obstruction of the lymph passages by cancerous growth. Chemical examination of the blood-free tissue fluid obtained from patients with such noninflammatory, benign or malignant, changes of the mammary gland revealed a surprisingly high protein content (on the average 4.5 to 5 Gm. per 100 cc.); the proportion of the protein fractions was about the same as that in the blood serum, but the albumin-globulin ratio was higher. The isoagglutinins and the electrolytes were the same as in the serum, although their concentration was slightly lower. These findings indicate that the tissue fluid originates from the blood serum.

The considerable accumulation of fluid in the connective tissue spaces of the mammary glands in pregnant women and in patients with certain types of disease of the breast is the result of increased permeability of the vascular walls; this, in turn, is probably caused either by the altered endocrine balance during gestation or by a hormone imbalance in patients with mastodynia and mastopathy, and primarily by hyperesterinism. The transient presence of large amounts of fluid rich in protein in the mammary tissue, observed during pregnancy and lactation, is probably related to the nutrition and function of the mammary glands whose activity is increased during these periods. The excessive accumulation of this extracellular fluid in patients with hormone imbalance and other disturbances is a pathological manifestation; its persistence causes fibrosis and hyaline degeneration of the interstitial tissue by the transformation of globular proteins in fibrous proteins and by the synthesis of solid mucopolysaccharides. There were no qualitative differences in the composition of the tissue fluids obtained from patients with benign and malignant processes.

PEDIATRICS

Neonatal Varicella: A Case Report with Isolation of the Virus. R. M. Ehrlich, J. A. P. Turner and M. Clarke. J. Pediat. 53:139-147 (Aug.) 1958 [St. Louis].

Varicella during the newborn period is uncommon, only 16 cases having been reported in which the disease occurred during the first 10 days of life. The authors present the history of an infant in whom the rash appeared on the 7th day. This is the third reported infant with neonatal varicella, on whom a complete autopsy was done, and it is the 4th fatality among 17 reported cases. In all 4 of the fatal cases the disease had its onset more than 5 days after birth. The infants born with the rash or with an early onset of the rash survived. A possible explanation for this is that in the infant who develops lesions soon after birth the viremia occurred in the mother at an earlier date. This may allow antibodies to be formed and then to pass the placental barrier to the infant, resulting in a more attenuated form of the disease. At postmortem examination of the infant studied the characteristic lesions were demonstrated in most organs. Endothelial as well as epithelial cells were involved. The spread of the virus probably occurred via the blood stream. Two conclusions can be drawn from this case: 1. Neonatal varicella may be more severe than generally thought, with a mortality of 20% as shown by the literature. 2. The onset of varicella between 5 and 10 days after birth appears to be more severe than when the disease occurs at an earlier age.

Clinical Study of Oral Phenoxymethyl Penicillin and Parenteral Procaine Penicillin G: Comparative Study of Results in 1266 Children. A. A. Mintz, C. Bashaw and L. L. Hill. A. M. A. J. Dis. Child. 96:179-183 (Aug.) 1958 [Chicago].

The recent introduction into clinical medicine of phenoxymethyl penicillin (penicillin V) provided a penicillin that is virtually insoluble and thus stable in the acid pH range of the stomach but soluble and readily absorbable in the alkaline pH range of the intestine. Reports indicate that orally administered phenoxymethyl penicillin produces blood concentrations considerably higher than an orally administered dose of the salts of penicillin G and concentrations somewhat lower than an equivalent parenterally administered crystalline dose, although the blood levels obtained with orally administered phenoxymethyl penicillin are superior to the levels obtained with comparable doses of intramuscularly administered procaine penicillin G. The group studied included 2,132 children who were admitted to the pediatric clinic with the usual infectious diseases found among a large indigent population and of whom 1,266 (59%) returned on the last day for evaluation. The patients were subjected to either of the following regimens: (1) procaine penicillin G—children less than 1 year of age were given 300,000 units intramuscularly daily, while children over 1 year of age were given 600,000 units daily for a period of 5 days and (2) phenoxymethyl penicillin —125 mg. (200,000 units) was administered orally every 6 hours for 5 days. No differences were noted as to the status of the patients after the 2 types of penicillin therapy in regard to initial clinical diagnosis, bacterial organisms isolated prior to therapy, and white blood cell counts. No pneumococci were present on repeat culture regardless of the type of penicillin used. Beta-hemolytic streptococci were still present in 30% of the patients on the 5th day regardless of therapy but were not present after the 10th day. On repeat culture as many or more Staphylococcus organisms (Staph. pyogenes var. aureus) were present after therapy as were present before. There were no significant differences in the number of side-reactions with the 2 types of penicillin.

Kwashiorkor: Report of Four Cases from Louisiana. V. M. Henington, E. Caroe, V. Derbes and B. Kennedy. A. M. A. Arch. Dermat. 78:157-170 (Aug.) 1958 [Chicago].

The protein-deficiency disease of children, referred to as kwashiorkor, has been reported from every part of Africa and from China, India, Malaya, Indonesia, Fiji, and the Philippines. It has also been reported from Hungary and Italy, from the Caribbean Islands, and from various parts of Central and South America. The 4 children presented are believed to be the first cases of kwashiorkor reported in this country. All 4 were Negro girls, ranging in age from 20 months to 11 years. The 1st and 4th patients presented findings which are regarded as reasonably typical of kwashiorkor as it is observed in equatorial Africa, while the 2nd and 3rd patients presented milder forms of the disease. The 1st patient (11 years old) had continuous vomiting and diarrhea, with passage of semiformed stools containing undigested food, ascariasis, profound inanition, generalized edema associated with hypoproteinemia and anemia, enlargement of the liver, a reddish tinge to the hair at the ends, apathy and mental retardation, and scaly follicular skin changes over the chest. The 4th patient, a very much younger child (20 months), also suffered from vomiting, ascariasis, loss of weight, generalized edema, weakness, and pronounced mental apathy. Her hair did not show a reddish tinge but was lighter, sparser, and dryer than usual Negroid hair. The 2nd and 3rd patients, sisters of the 1st, presented typical manifestations of the disease but in a milder (forme fruste) form. Inanition and apathy were conspicuous. The scaly rash present over the buttocks of the 3rd child seemed to be similar to the changes observed in the early stage of kwashiorkor. The 2nd patient had the most marked reddish tinge to her hair.

All 4 children have improved with an improved dietary regimen, though they are still below normal in weight and height, particularly the 1st child who is the oldest of the 4 patients. The 4th child has been under observation too short a time to permit conclusions, but she has improved greatly on a high-protein diet. Provision of food of high-protein and high-vitamin content by the Louisiana State Health Department has undoubtedly prevented a relapse of kwashiorkor in the first 3 of these patients. On the other hand, all the children, especially the younger ones, still eat dirt, and for this reason, plus their lack of cleanliness, intestinal parasitism still presents an unsolved problem. The authors believe that other patients in the United States have kwashiorkor, and they hope that this communication will call attention to the importance of recognizing and treating them.

Early Diagnostic Criteria of Congenital Hypothyroidism. G. H. Lowrey, R. H. Aster, E. A. Carr and others. A. M. A. J. Dis. Child. **96**:131-143 (Aug.) 1958 [Chicago].

A series of 49 cretinous patients, ranging in age from 12 months to 32 years, have been followed from 1 to 32 years. The average age at the time of diagnosis was 12 months. A survey of these patients, three-fourths of whom were female, has revealed that 54% had at least 3 prominent symptoms of their disease by the end of the first month of life and 75% by the end of the third month. For purposes of comparison, 100 normal infants were followed in the well-baby clinic for at least 6 months. The most commonly observed findings, in order of frequency, were lethargy, constipation, feeding problems which included slow feeding, choking, failure to gain weight, and lack of interest, umbilical hernia, and skin changes. Sluggishness of intestinal peristalsis was a quickly recognized characteristic of the hypothyroid patient, only 4 of the cretins in this study failing to manifest this difficulty. Respiratory distress associated with cyanosis appeared in 15 patients in the first months of life, 6 of the parents reporting cyanosis at some time during the first 24 hours after delivery and oxygen being administered to 3 of the cretins for periods exceeding 24 hours. Noisy respirations were not an uncommon complaint. Abnormal dryness of the skin was noted within the 1st month of life by one-third of the parents and within the 4th month by more than three-fourths. Thickening of the tongue to the point that it protruded from the mouth and interfered with respiration or feeding was noted in two-thirds of the infants in this series, the abnormality being observed for the most part prior to the 3rd month and always by the 5th month. Four of the patients were observed to have goiters either at birth or in early childhood. Umbilical hernia, which seldom developed later, was noted during the first week of life in two-thirds of the series. Not one of the infants had attained an expected or normal linear growth for his chronological age in comparison with tables of Stuart and Meredith. A hoarse or deep cry was noted in half of the patients, and loud or difficult breathing in a like number. The heart rate in 35% of the patients was 100 or below and was at this age indicative of true bradycardia. In 11 patients (55%) rectal temperatures persisted below 98 F (36.6 C) until therapy was instituted. Less frequently noted skin changes included pallor, 10; mottling and "coldness," 8; carotenemia ("yellow skin"), 4; and prolonged icterus neonatorum, 6. Alkaline phosphatase determinations gave results below normal in 11 patients, and after one year of age the cholesterol levels were significantly elevated in the majority of the untreated cretins. The only pertinent hematological finding was that of a moderate hypoplastic anemia in half of the patients. The evaluation of bone maturation was a valuable screening device, since every patient adequately examined by x-ray for "bone age" had easily measured retardation. The diagnosis of cretinism can usually be made, with the aid of a careful history, adequate physical examination, and a few laboratory procedures, by 3 months and certainly before 6 months of age.

Incontinentia Pigmenti (Bloch-Sulzberger's Disease). M. Lamy, R. Garcin, B. Duperrat and others. Arch. franç. pédiat. **15**:577-585 (No. 5) 1958 (In French) [Paris].

The authors report a case of incontinentia pigmenti in a female infant who at birth had 2 bullae filled with a clear fluid, one on the right hand and the other on the left leg. More bullae appeared during the following days. These lesions were very small but were associated with red papules, apparently pruriginous, varying in size from that of a millet seed to that of a lentil. At the age of 1 month the bullae had disappeared, but there was an eruption of papules of lichenoid type and occasionally verrucose, mainly on the extremities. This eruption became generalized, but the thighs and legs were particularly affected; the pattern of the eruption was definitely linear. The family history was entirely negative. Blood studies revealed a considerable eosinophilia on repeated examinations, varying from 23 to 32 per 100 cc. A skin biopsy was made and revealed the characteristic triad of bullae, eosinophilia, and dyskeratosis. Repeated bouts of the eruption occurred in the course of the following months, but with decreasing severity. The eosinophilia became less pronounced and was restored to normal (2 per 100 cc.) when the infant was 8 months old. At the age of 10 months the clinical picture again was changed, and the diagnosis of incontinentia pigmenti was made. The papular eruption was replaced by pigmentary spots of a chocolate-brown color, of spattered shape, and arranged in stripes, particularly at the sides of the thorax. The mucous membranes were not involved. The development of the infant's body, as well as her mental development, was normal. Ocular or nervous disturbances were not observed. There was only a slight delay in dentition. The skin of the infant was brittle and sensitive to sunshine.

The causation of incontinentia pigmenti is unknown. There is a general tendency to consider the condition as a congenital malformation of nevoid type. This concept is based on the appearance of the eruption at birth or during the first days of life, the occurrence of familial cases which may be rare but definite, suggesting a Mendelian dominant, and the frequent association with malformations of the eyes and the nervous system, suggesting a true congenital neuroectodermosis. Other concepts proposed include an infectious and an allergic origin. In agreement with most of the workers, the authors consider incontinentia pigmenti a dysembryoplasia, often associated with other congenital malformations, occasionally familial, the mechanism of which is unknown.

Lymphangioma of the Genitalia in Children. S. A. Gueukdjian. Pediatrics 22:247-249 (Aug.) 1958 [Springfield, Ill.].

The author reports on a 3-year-old boy with a swelling of the penis and left groin which had been present recurrently since birth, without pain or ulceration. Exploration was carried out through a left inguinoscrotal extended incision. The subcutaneous tissues down to, but not including, muscle were found to be invaded by a network of multiple cysts containing lymph. The walls of the cysts were thin, glistening, and frail. The limits of the infiltrated area were well defined. En bloc excision was carried out. A polyethylene catheter was inserted subcutaneously, and the skin was closed with interrupted silk sutures. Continuous suction was maintained for 3 days, the catheter being gradually withdrawn every day. Antibiotics were given parenterally as prophylaxis. At subsequent examination as an outpatient, the boy was considered cured; there were no signs of lymphorrhea or recurrence, up to 1½ years after the operation. Microscopic examination of the operative specimen revealed cysts lined with a single layer of endothelium and surrounded by loose fibrofatty tissue. The diagnosis was lymphangioma. There was no evidence of malignancy. Lymphangioma is an uncommon benign neoplasm of the lymphatic system. If surgical and pediatric interest were directed to it, the condition would be diagnosed more often. Localization of these tumors in the region of the groin and external sex organs is unusual and presents diagnostic problems. Most of the cases occur in childhood. Treatment is by excision, but recurrences are to be feared.

Appendicitis in Childhood: A Study of 1,358 Cases. L. A. Longino, T. M. Holder and R. E. Gross. Pediatrics 22:238-246 (Aug.) 1958 [Springfield, Ill.].

The author reports on 1,358 patients who were admitted to the surgical service of the Children's Hospital in Boston with acute appendicitis and were treated between July 1, 1944, and Jan. 1, 1957. Seven hundred forty-three patients (56%) were boys. Six hundred eleven (45%) had a ruptured appendix. Of these, 369 were less than 6 years of age, 231 were between the ages of 6 and 12 years, and 11 were over 12 years of age. The younger the child, the greater the likelihood of rupture. Only 1 patient, who was less than 2 years of age, died, a mortality rate of 0.07%. There have been no deaths in the last 12 years during which 1,309 patients were operated on. Patients with an unruptured appendix were hospitalized for less than 6 days, and those in whom the appendix had ruptured were hospitalized for about 12 days. Almost all the complications which were observed occurred in patients with a ruptured appendix. The most common complications were abscesses and other infections. Prompt appendectomy is the treatment for all children with appendicitis. Early diagnosis is of utmost importance, although in small children this may be difficult. The triad of abdominal pain, fever, and vomiting should be considered indicative of appendicitis until proved otherwise. To operate on these children with safety, adequate preoperative preparation and postoperative care are of greatest importance. The appendix was removed and the abdominal cavity drained in all the patients with ruptured appendix. Postoperative obstruction of the small intestine occurred in 45 patients; the obstruction occurred 5 to 10 days after the operation in 44, and 6 months after appendectomy and drainage in 1. Most of the immediate postoperative obstructions were managed successfully with a long intestinal tube.

The fact that nearly 50% of the patients had rupture of the appendix before the time of hospitalization is strong proof that diagnostic methods need to be improved. The early recognition of this disease would permit surgical intervention before rupture and peritoneal soiling has occurred. The most important effort that can be made in this direction is to recommend 24 to 48 hours of observation in a hospital for any child in whom appendicitis is suspected. At little expense, this allows frequent checking by appropriate members of the resident or visiting staff of the hospital. If findings suggestive of inflammation of the appendix disappear, the child generally can be sent home the following day. For one in whom the abdominal findings become more impressive under observation, operation can be performed while there is still an opportunity to do so before rupture of the appendix has taken place.

Neurological Complications of Pertussis Immunization. J. M. Berg. Brit. M. J. 2:24-27 (July 5) 1958 [London].

The sequelae after active immunization against whooping cough have ranged from transient convulsions with complete recovery to gross crippling, mental retardation, and death. The author reports the case of an 8-month-old male child who received a first inoculation of 1 ml. of combined diphtheria-pertussis vaccine containing a plain suspension of 20,000 million Hemophilus pertussis bacilli and 25 Lf of fluid diphtheria formol toxoid. Within 48 hours convulsive episodes began. At 11 months of age the child was severely retarded mentally, and the administration of 16 mg. of phenobarbitone twice daily was required to control his convulsions. At 15 months grand mal episodes became associated with the original convulsive pattern, and it was found necessary to increase the phenobarbitone dosage to 1 Gm. At 3 years the child remained grossly mentally retarded, with no speech or understanding of speech, inability to do anything for himself, and an IQ of 23 on the Griffiths mental developmental scale.

The author has reviewed a total of 107 cases in the literature, from some 25 sources, pertaining to pertussis immunization. The age of inoculation ranged from 4 days to 3 years. In 28 children a pertussis vaccine alone was used, and in 28 a combined pertussis-diphtheria vaccine. No significant difference is accorded the use of either preparation, although there is general agreement that the pertussis antigen is responsible for the reported neurological sequelae. The dosage of H. pertussis bacilli ranged from 1.5 to 45,000 million with no particular tendency for reactions to be associated with the larger doses. In 61 instances a reaction occurred with the first injection, and although the data indicate that a reaction may occur with any injection, there is a decreasing likelihood of reaction to subsequent injection, provided that previous injections have not elicited some activity. The early onset of symptoms was characteristic, although not invariable, the greater majority of reactions occurring within 12 hours. Convulsions were an almost invariable and striking feature. Paralyses were reported in 19 of the 107 cases. Death occurred within 48 hours of inoculations in 8 cases, 7 of the deaths occurring within 24 hours. Additional features, other than the neourological, included diarrhea, vomiting, cyanosis, and hiccups. Complete recovery was reported in 41 patients (38%) and presumably occurred in at least 9 other instances. A total of 31 children (29%) were reported as having physical and/or mental signs of cerebral involvement 1 month to 5½ years after immunization. Follow-up revealed a mortality of 14% (15 of 107 children). Included among the various hypotheses advanced to account for the complications are: (1) sensitization phenomenon; (2) specific toxin or toxins produced by H. pertussis; (3) constitutional predisposition in affected children; (4) pyrogens contaminating vaccines; and (5) accidental intravenous injection of vaccine.

Persistence of Fetal Ductus Function After Birth: The Ductus Arteriosus as an Avenue of Escape. H. L. Abrams. Circulation 18:206-226 (Aug.) 1958 [New York].

The author reports on 9 infants, between the ages of 6 days and 9 months, with various congenital cardiac anomalies in whom the fetal venoarterial flow through the ductus arteriosus persisted after birth. The conditions associated with persistence of fetal ductus function after birth included isolated patent ductus arteriosus with marked increase in pulmonary resistance, patent ductus arteriosus associated with congenital pulmonary disease, pulmonary vein atresia, mitral atresia, mitral stenosis, aortic atresia, interruption of the aortic arch, and preductal coarctation. In all these conditions, the pulmonary arteriolar resistance must be significantly elevated to permit flow into the descending thoracic aorta. Beyond this, the common denominator of the malformations, in which right-to-left flow through the ductus arteriosus persists after birth, is the presence of a site of obstruction to blood flow in the pulmonary vessels, left heart, or aorta at some point beyond the pulmonary origin of the ductus arteriosus but proximal to its aortic insertion. The ductus serves as an "avenue of escape" in most of these lesions; in no other way could blood leaving the right ventricle reach all or part of the systemic circulation without precipitating or increasing right or left heart failure.

That the ductus arteriosus, however, does not provide an effective method of sustaining life indefinitely in these circumstances is clear from the fact that 7 of the 9 infants died; the average duration of life was above 13 months, and 3 infants died before the age of 1 month. In one of the surviving patients, in whom surgery was not permitted, a state of balance consistent with life has apparently been reached; this patient is still alive at the age of 4½ years. The other surviving patient, who had coarctation of the aorta, with a right-to-left shunt through a patent ductus arteriosus complicated by a ventricular septal defect, was operated on. Surgical closure of the ductus and excision of the coarctated segment were followed by improvement. Closure of the ventricular septal defect is contemplated after a period of stabilization. Increased resistance in the pulmonary vascular bed is reversible in some cases of coarctation associated with reversed flow through the distal part of the ductus. This may have significant implications for all lesions in which reversal of flow through the ductus is based on the primary increase in resistance beyond the pulmonary arteriolar bed. With improved techniques of open heart surgery, complete correction for all these anatomic malformations may be feasible, and it seems reasonable to suppose that closure of the ductus arteriosus, when normal anatomic channels elsewhere have been restored, need not necessarily be a hazard despite the obvious increase in pulmonary resistance.

Familial Thalassemia and Erythremic Myelosis. I. Olshin and A. Sawitsky. Pediatrics 22:250-258 (Aug.) 1958 [Springfield, Ill.].

The authors report on a 10-year-old boy of Italian background who had been well until an attack of mumps followed by weakness, lassitude, and pallor. Two months later scleral icterus, enlarged liver and spleen, and tenderness over the sternum and long bones were noted. The findings of anemia, erythrocytosis, anisocytosis, poikilocytosis, target cells, and basophilic stippling in the patient and his parents, a shift of the saline fragility curves to the right in the parents, and anemia and erythrocytosis in a brother and a sister of the patient made it evident that the hereditary leptocytosis (thalassemia) trait was present in the family. Marked erythroid hyperplasia, however, was found in the patient's bone marrow, with many proerythroblasts and abnormal immature erythrocyte precursors. These findings were reflected in the patient's peripheral blood in which 100 nucleated erythrocytes were counted for every 100 leukocytes. The presence of atypical, primitive erythrocyte precursors in the marrow and peripheral blood and the late onset of symptoms in the patient made it unlikely that the disease was thalassemia but rather suggested a more malignant process, namely, malignant erythrocytosis (Gugliemo's disease).

Treatment of the patient's condition with cyanocobalamin (vitamin B_{12}), folic acid, and cortisone was ineffective. Monthly blood transfusions were required to maintain the concentration of hemoglobin at about 8 Gm. per 100 cc. Splenectomy was followed by transient improvement for the next 3 months. Myeloblastic proliferation then occurred in the bone marrow and in the peripheral blood. The myeloid phase was suppressed by the administration of mercaptopurine. Transfusions were continued as required. Twelve months after the onset of the disease, an area of nontender induration occurred in the right cheek. Six months later a biopsy of this mass revealed malignant reticulum cells interspersed with immature hematopoietic elements, which were considered characteristic of "erythroblastoma." Still 3 months later the patient sustained a mild injury of the left elbow, which was followed by hemarthrosis and subluxation of the joint and was complicated by an infection of the joint with Bacteroides subtilis. Intensive antibiotic therapy for several months was required to control the infection. Moniliasis of the mouth occurred and subsided after topical and systemic treatment with nystatin, but congestive cardiac failure, probably secondary to anemia and prolonged treatment with large doses of steroids, resulted in death.

Autopsy revealed erythroblastic infiltration of the bone marrow, liver, lungs, lymph nodes, and heart. Increased amount of hemosiderin was also observed. The gastrointestinal tract revealed areas of hemorrhagic necrosis of the submucosa and invasion of this tissue by leukemic cells, polymorphonuclear cells, and yeasts. There was evidence of severe degrees of systemic mycosis. In this patient with familial thalassemia a myeloproliferative disorder with bidirectional involvement occurred; the inherited red blood cell defect probably was the cause of the predominant expression of the disorder in the erythroid system. With a growing awareness of the hazards associated with prolonged steroid and antibiotic therapy, it became evident that many of the patient's clinical and pathological manifestations, such as the infection of the elbow joint, the monilial infection of the mouth, and the widespread systemic mycotic infiltrations revealed by autopsy, were secondary to these therapeutic agents rather than to the primary disease.

Rubella: Demonstration of Neutralizing Antibody in Gamma Globulin and Re-evaluation of the Rubella Problem. S. Krugman and R. Ward. New England J. Med. 259:16-19 (July 3) 1958 [Boston].

Contradictory results reported about the efficacy of gamma globulin in the prevention of rubella induced the authors to investigate the presence of neutralizing antibody in ordinary gamma globulin, convalescent-phase rubella plasma, and gamma globulin prepared from plasma of patients convalescent from rubella. The serum, containing rubella virus taken from patients on the first day of rubella rash, was mixed with equal portions respectively of ordinary gamma globulin, of convalescent-phase rubella plasma, of convalescent-phase rubella gamma globulin, and of normal human serum. Each of the 4 mixtures was inoculated into 4 comparable groups of 6 presumably susceptible children. The material was given intramuscularly in a dose of 1 ml. Five of 6 children who received rubella serum plus normal serum contracted typical rubella after incubation periods ranging from 15 to 21 days. One of 6 children receiving virus and ordinary gamma globulin acquired characteristic rubella on the 17th day. In the group receiving convalescent-phase plasma mixed with virus, rubella developed in 1 subject 14 days after inoculation. All 6 children who received the mixture of virus and convalescent-phase gamma globulin remained well. Thus, it appears that passive protection against rubella can best be achieved by early administration of large doses of gamma globulin. Future controlled field studies will have to define the precise dosage. In the meantime, gamma globulin in a dose of 0.15 to 0.20 ml. per pound of body weight appears to be indicated. It has been the practice to give 20 ml. intramuscularly to women exposed during pregnancy. If convalescent-phase rubella gamma globulin is available, 10 ml. given intramuscularly should be sufficient.

The authors also comment on recent prospective studies assessing the risk of fetal abnormality. Evidence suggests that the potential risk is increased approximately 6 times if rubella is acquired in the first trimester of pregnancy. The prevalence of congenital malformations has been estimated to be approximately 12%. Therefore, it is incumbent upon the physician to consider each case in the light of its individual merits. The deliberate exposure of young girls to rubella is recommended. One attack of this benign disease of childhood is generally followed by immunity. At the present time this procedure is the best method of preventing the serious effects of rubella in the offspring.

Myasthenia Gravis in Children. R. L. Sampayo and L. C. Stigol. Arch. argent. pediat. 29:154-167 (April) 1958 (In Spanish) [Buenos Aires].

Myasthenia gravis in infants and children is more frequent than is generally assumed. A diagnosis is made by the results of the Prostigmin test, which consists of the intramuscular injection of neostigmine (Prostigmin) bromide in doses ranging from 0.07 to 0.1 mg. in newborn infants and of the subcutaneous injection of 0.5 mg. of the drug in children up to the age of 10 years. The myasthenic syndrome is observable in the newborn infants of mothers who are suffering from the disease, whether or not the mothers have received Prostigmin. Palpebral ptosis and disorders of deglutition appear during the first 48 hours after birth, and the infant is constantly moaning. On the administration of Prostigmin by mouth, the patient reacts immediately and favorably. After 15 days the treatment is discontinued and needs not be resumed. Both in infants and in children myasthenia gravis may start with acute symptoms and may be complicated by more or less serious bronchopulmonary diseases. The symptoms, which are similar to those observed in adults, consist mainly of fatigability and progressive paralysis of certain muscles, especially those of the face, lips, tongue, throat, and neck. There are no sensory disturbances. The cerebrospinal fluid is normal, and the patient remains completely alert to his environment.

The subjects of this report were 2 girls, aged 5 and 8 years. Ptosis appeared in both patients at the age of 2 years. It was bilateral in one case and unilateral in the other. In both patients it was total. One of the patients had been treated with Prostigmin but with dosage that the parents did not know. In both patients the Prostigmin test and Jolly's myoelectric test for myasthenia gravis gave positive results. Treatment has been given to only one of the patients. It consisted of the administration of pyridostigmine (Mestinon) bromide in doses of 60 mg. 3 times a day. All the symptoms of myasthenia, including palpebral ptosis, disappeared. The patient is now in a satisfactory state of general health.

The authors believe that pneumomediastinum as a diagnostic procedure for the presence of tumoral thymus is unnecessary and that thymectomy is ineffective in children. Thymectomy is a very serious operation, the results of which are no better than those obtained with medical treatment with Prostigmin.

Acquisition of Intestinal Protozoa and Helminths by Young Children in a Typical Village of Lower Egypt. R. E. Kuntz and D. K. Lawless. Am. J. Trop. Med. 7:353-357 (July) 1958 [Baltimore].

The authors studied 81 children weekly for their intestinal fauna over a period of 16 weeks at Sindbis, a village representative of the delta area of lower Egypt. Of the 81 children, 23 were between the ages of 1 and 6 months, 30 were between the ages of 13 and 24 months, and 28 were between the ages of 26 and 47 months. The intestinal fauna of the youngest group was limited quantitatively and qualitatively, and only flagellate protozoa were detected. Examination of stool specimens obtained from the children between 13 and 24 months of age indicated that the period between 15 and 20 months was very important from the standpoint of general establishment of intestinal fauna in a child. Flagellates increased in number, amebas were detected, and the eggs of Ascaris, Enterobius, and Hymenolepis nana were passed with the feces. At the age of 16 to 18 months Entamoeba histolytica became established, the rate of infection increasing rapidly during the next 2 years. In the oldest age group, protozoan and helminth populations increased markedly, and none of the 28 children in this group escaped invasion by intestinal fauna.

A total of 9 species of protozoa and, in addition, both the large and the small races of E. histolytica and 6 different helminths were found in the latter age group by the time this study was terminated. Although Sindbis lies in an endemic area, neither of the 2 schistosomes common to Egypt were found.

Penicillin in the Treatment of Streptococcal Infections: A Comparison of Effectiveness of Five Different Oral and One Parenteral Form. B. B. Breese and F. A. Disney. New England J. Med. 259:57-62 (July 10) 1958 [Boston].

The authors treated 611 children, between 1 and 17 years of age, who had infections due to beta-hemolytic streptococci, with 1 form of parenterally administered penicillin and 5 different preparations given orally in order to determine their effectiveness against streptococcic infections. Of the 611 patients, 122 received a total dose of 600,000 units of benzathine penicillin G, 237 were given a total dose of 8 million units of phenoxymethyl penicillin (penicillin V), 114 received a total dose of 8 million units of buffered potassium penicillin G, 66 were given a total dose of 7.5 million units of buffered potassium penicillin G and probenecid, and 72 received 5 million units of buffered potassium penicillin G and probenecid suspension. These children were observed for 2 months after the institution of therapy. No patient was included in the study who did not have a throat culture at least 11 days after the onset of therapy. Acute tonsillitis or pharyngitis was diagnosed in almost 70% of the patients; 19% were carriers; 5.4% had cervical adenitis and 4.7% scarlet fever. The remaining patients had infections, such as otitis media, sinusitis, and cellulitis. Uniformly good immediate results were obtained with all the preparations tested.

The ultimate effectiveness of these drugs, as judged by the cure rate at the end of 2 months, the relapse rate within 25 days, and the proportion of strongly positive cultures obtained from patients with relapses, indicated that a single intramuscular injection of 600,000 units of benzathine penicillin G was superior to the preparations given orally. The parenterally administered penicillin preparation may have the additional value of preventing some subsequent unrelated streptococcic infection. Among the orally administered drugs no single preparation was significantly superior to the others. The choice of which one to prescribe is incumbent on the physician. The skin reactions which were observed after probenecid had been used for more than a week were harmful, although not serious. Parenteral administration of penicillin is cheaper than the administration of oral preparations and is not associated with the problems encountered with the latter. Benzathine penicillin G given in a single dose of 600,000 units intramuscularly is the authors' first choice in the treatment of streptococcic infections in children. Its chief disadvantage lies in the painful local reactions frequently observed and the psychological trauma engendered by the use of a needle.

Therapeutically, but not prophylactically, the oral preparations used were almost as effective as the one administered parenterally. The choice of which oral drug to select should be based on factors other than effectiveness, since there is no evidence to indicate the therapeutic superiority of any one product. Since cost is often the most important factor, among the oral preparations tested, buffered potassium penicillin G in a dosage of 800,000 units daily for 10 days is the first choice for oral treatment of streptococcic infections in children.

OPHTHALMOLOGY

Metastatic Carcinoma of the Retina: Report of a Case and the Pathologic Findings. R. J. Kennedy, W. D. Rummel, J. L. McCarthy and J. B. Hazard. A. M. A. Arch. Ophth. 60:12-18 (July) 1958 [Chicago].

Metastatic carcinoma of the eye, involving the retina alone, is an extremely rare lesion, only 2 cases having been previously reported. The authors report on a secondary carcinoma of the macula of the right eye, the primary site of which was the rectosigmoid. The patient underwent surgery for a grade 3 adenocarcinoma of the rectosigmoid. Ophthalmoscopic examination 3 months later revealed that the lesion in the macular region of the right eye, which had been previously diagnosed as metastatic carcinoma of the choroid with macular involvement, had enlarged, with new vessels coursing over it. Enucleation was done, and sections revealed a neoplasm involving the retina which was histologically similar to that found in the rectosigmoid.

Gross sections revealed a small discoid, grayish-white, nonpigmented lesion at the posterior pole, elevating the retina but not distending the choroid. The anterior segment and the posterior sections were within normal limits. The sections adjoining the nasal border of the lesion showed a pink-staining acellular fluid elevating the retina from the retinal pigment layer. Temporal to the latter section, the tumor mass involved the retina, which had lost its architecture, exhibiting necrosis and degeneration of the various layers and the adjoining subretinal space. The choroid was normal save for focal sites of perivascular inflammation and hyperemia in the region of the lesion. The neoplasm was formed of atypical stratified-columnar epithelial cells in small nests with lumens and separated by patches of necrotic tumor material. No tumor growths were found in the choroid, sclera, optic nerve, or vitreous, and there were no implantation growths. The patient died within 3 months, possibly because of generalized metastases.

Audiometric Studies on Patients with Degeneratio Pigmentosa retinae. B. Alberth, A. Bálint and A. Kósa. Klin. Monatsbl. Augenh. 132:797-806 (No. 6) 1958 (In German) [Stuttgart, Germany].

Audiograms were obtained with the aid of an audiometer from 11 men and 6 women with retinitis pigmentosa, who were examined at the ophthalmological clinic of the University in Debrecen, Hungary. In 15 of the 17 patients the disease was acquired (autonomic), and in 2 it was primary (hereditary). Mild to severe degrees of hardness of hearing for the higher sounds were observed in all the patients. An additional selective loss of the power of hearing was observed at 4096 cps. These 2 characteristics suggested that the hardness of hearing originated in the nervous system. The impairment of hearing paralleled the narrowing of the visual field rather than the decrease of visual acuity. It was the authors' impression that the changes in visual acuity, which resulted from combined treatment of 10 patients with vitamins A, B_1, and C, liver, and various vasodilators and placenta implantations according to Filatow's technique, paralleled the changes in hearing in most of these patients. It was not possible to establish a precise relationship between the vision (visual field) of one eye and the hearing of the homolateral or contralateral ear. Lateralization, i. e., the possibility of a certain relationship between one eye and the contralateral ear, which has been suggested by some workers, remains an open question.

The fact that a loss of hearing was established in all the patients with pigmentary degeneration of the retina favors—in addition to many other reasons—the concept that the autonomic pigmentary degeneration of the retina is likewise neither an isolated disease of the eye nor the result of a local cause, but that it is rather closely connected with the central nervous system. Both the hereditary and the autonomic type of the disease may develop as concomitant manifestations resulting from a lesion of a central anatomic structure not yet identified.

THERAPEUTICS

The Use of Hydrocortisone in the Treatment of Tuberculous Meningitis. R. L. Cranny and V. C. Kelly. A. M. A. J. Dis. Child. 96:165-168 (Aug.) 1958 [Chicago].

The Reddy modification of the Reddy-Jenkins-Thorn technique was used to determine the levels of 17-hydroxycorticosteroids (17,21-dihydroxy-20-ketosteroids) in several samples of spinal fluid withdrawn 4 hours after the oral or the parenteral administration of hydrocortisone. Extremely small amounts of detectable Porter-Silber chromogens were present in the normal control spinal fluid samples. However, 17-hydroxycorticosteroids (17-OHCS) were present in all the samples from the patient with tuberculous meningitis after administration of hydrocortisone either orally, intramuscularly, or by both routes. They were also detected in 2 children without tuberculous meningitis 2 and 4 hours after the intravenous administration of hydrocortisone. A positive Porter-Silber reaction was not forthcoming after the administration of 100 mcg. of PAS and of isoniazid. In the single case cited, no evidence of spread of tuberculosis induced by hydrocortisone was noted. An interesting, though as yet unexplained, observation was the finding of a high concentration of 17-OHCS in the spinal fluid of a patient with tuberculous meningitis 2½ months after hydrocortisone therapy had been discontinued—a finding which has been attributed to either a continued release of steroids that had accumulated in the tissues or the increased permeability of the "blood-brain barrier" to steroids during the acute and convalescent stages of different diseases.

Clinical Studies on Tebamin. K. Tørning, K. A. Jensen and I. Kiaer. Acta tuberc. scandinav. 35:87-100 (No. 2) 1958 (In English) [Copenhagen].

It has been demonstrated that, when aminosalicylic acid is given in conjunction with isoniazid or streptomycin, the development of bacterial resistance to these 2 valuable drugs may be prevented for a long time. For that reason aminosalicylic acid today is indispensable in the chemotherapy of tuberculosis. Unfortunately, oral administration of aminosalicylic acid often entails such marked dyspeptic disturbances that long-term treatment becomes difficult, if not impossible. Furthermore, during ambulant chemotherapy there is always a possibility that unwise patients may stop taking the drug, without informing the physician, thereby exposing themselves to the serious risk of the development of chemoresistant tubercle bacilli. The authors for several years experimented with a derivative, the phenyl ester of aminosalicylic acid, known as Tebamin. The first preparation employed in these tests was micronized Tebamin in tablet form. The results of combined treatment with Tebamin tablets (5 Gm. 3 times daily) and isoniazid were promising, as far as prevention of the development of resistance was concerned. The level of free aminosalicylic acid in the blood was, however, rather low. Other Tebamin preparations were tried, and now for more than a year the authors have used Tebamin in the form of a powder, consisting of finely micronized Tebamin treated with a surface-active substance and mixed with an equal part of sucrose. A fine suspension is obtained when the powder is carefully mixed with water or milk. After oral administration, some 80% is absorbed. Preliminary tests on healthy subjects and on patients have demonstrated that Tebamin is nontoxic and that it causes only negligible dyspeptic disturbances.

The main object of the studies described was to investigate the capacity of Tebamin to retard the development of resistance to isoniazid. For this study, 22 patients were selected and were treated daily with 4 mg. of isoniazid per kilogram of body weight in 3 divided doses, together with Tebamin in doses of 4 Gm. given 3 times a day after meals. With this treatment there was no increase in the resistance of tubercle bacilli to the 2 drugs, Tebamin and isoniazid. Furthermore, direct smear and culture of the sputum or culture from gastric lavage showed that all the patients had become free from tubercle bacilli, with the exception of one who was treated for 9 weeks only. The observation period, throughout which weekly examinations of the sputum or gastric lavage were made, was in 14 cases longer than 30 weeks; in 7 cases it was between 18 and 29 weeks; and in 1 case it was only 9 weeks. The studies proved that Tebamin is suitable for combined treatment with isoniazid. When this therapy is employed, only minimal dyspeptic disturbances arise, and the development of resistance of tubercle bacilli is prevented.

Nil nocere!: Deafness Caused by Intramuscular Administration of Neomycin. S. Körtge-Stöppler and G. Mittag. München. med. Wchnschr. **100:** 1189-1192 (Aug. 8) 1958 (In German) [Munich, Germany].

The authors report on 2 men and 2 women in whom severe disturbances of hearing resulted from the intramuscular administration of neomycin. Two of the patients were less than 30 years of age. The first patient had an inflammation of the urinary passages and was given 0.5 Gm. of neomycin intramuscularly twice a day for 5 days; the total dose of the drug administered was 5 Gm. On the 6th day she complained of tinnitus and difficulty of hearing. Administration of the drug was discontinued, but the disturbance became worse. The excitability of the apparatus concerned with maintaining equilibrium remained normal in both ears. The second patient who had chronic renal disease received the same neomycin therapy as the first patient and complained of tinnitus and poor hearing on the 9th day after the institution of the treatment; the difficulty of hearing increased within the following 11 days. The third patient had a recurrent furunculosis associated with cardiac disease for which he was treated with neomycin for 8 days; the total dose of the drug given intramuscularly was 7.5 Gm. Difficulty of hearing which began on the 11th day after the institution of neomycin therapy progressed to deafness; the excitability of the vestibular apparatus remained normal. The fourth patient had osteomyelitis and was treated with neomycin for 25 days; the total dose of the drug given intramuscularly was 12.5 Gm. Ten days after the cessation of treatment and on the 35th day after its institution, the patient complained for the first time of difficulty of hearing. The caloric excitability of the apparatus concerned with equilibrium remained normal in both ears.

These findings showed that the period elapsing from the institution of neomycin therapy to the onset of the disturbances of hearing was short. The difficulty of hearing increased after the withdrawal of the drug. Since there was evidence of a renal disorder (partly only mild) in all 4 patients, it has been emphasized again that intramuscular administration of neomycin is contraindicated in patients in whom renal disease is merely suspected.

Open Healing of Tuberculous Cavities: Results in 40 Patients Treated Conservatively. T. M. Wilson, L. Doyle and M. P. Gardiner. Brit. M. J. 2:87-90 (July 12) 1958 [London].

The authors report on their experience with indefinite prolonged chemotherapy in the treatment of 40 patients with advanced pulmonary tuberculosis with persistent cavitation, who had been observed for periods ranging from 1½ to 5 years. Thirty-seven of the patients had been adjudged by virtue of age, advanced disease, or poor respiratory function as unsuitable for surgery, the remaining 3 patients having refused surgery. All the patients were sputum positive; 35 had received no treatment, and 5 had had previous chemotherapy with drug combinations considered unlikely to produce resistant organisms. Thirty-two of the patients received a triple drug regimen—streptomycin, PAS, and isoniazid—during the first year of treatment. The other 8 patients received varying drug combinations because of inability to tolerate PAS, partial nerve deafness, or allergic reaction to PAS. Only one of the patients did not continue to take antituberculosis drugs.

All the patients showed marked clinical and roentgenologic improvement, which usually continued into the second or third year of treatment. Tomograms showed marked resolution of disease, although multiple cavities persisted in 28 patients. Thin-walled, cyst-like cavities persisted in 25 patients; the residual cavities were apparently thick-walled in 12; and in 3 both varieties persisted. The rate of sputum conversion was rapid; 37 patients became sputum negative within 6 months and 2 during the 7th and 9th month; the last patient remained intermittently positive for 15 months. One other patient produced a solitary positive sputum culture during the third year of observation.

Chemotherapy of Tuberculosis: III. Verazide in the Treatment of Pulmonary Tuberculosis. S. D. Rubbo, L. C. Rouch, J. B. Egan and others. Am. Rev. Tuberc. 78:251-258 (Aug.) 1958 [New York].

The authors conducted a clinical trial of 3,4-dimethoxybenzal isonicotinylhydrazone (Verazide) in 3 hospitals in Australia, in which the response in 2 groups of patients with pulmonary tuberculosis was studied for 3 months. One group of 79 patients received Verazide and streptomycin, and a control group of 75 patients was given isoniazid and streptomycin. Verazide was given in a dose equivalent to 20 mg. per kilogram of body weight by mouth as enteric-coated tablets in divided doses twice daily after meals. Sixty-four of the 75 control patients were given 8 mg. of isoniazid per kilogram of body weight daily in 2 divided doses, and 11 received 300 mg. of isoniazid daily irrespective of their weight. All the patients received 1 Gm. of streptomycin, either on alternate days for the entire trial period or daily for 6 weeks and thereafter 3 times a week. The results, assessed on clinical, roentgenographic, and bacteriological criteria, showed that no difference in effectiveness could be seen between Verazide and isoniazid. However, Verazide, when given in uncoated tablets, caused toxic reactions, such as drowsiness, slurred speech, and occasionally blurred vision and nausea. These manifestations of intoxication of the central nervous system were not observed with isoniazid; they did not occur when Verazide was administered in enteric-coated tablets. These toxic effects of Verazide were attributed to the rapid absorption of veratric aldehyde released during partial acid hydrolysis of Verazide in the gastric juice. On the evidence available, no chemotherapeutic or pharmacological advantage can be claimed for Verazide, when compared with isoniazid, for the treatment of pulmonary tuberculosis.

Oral Treatment of Diabetes: Trial of Phenylethyldiguanide (D. B. I.). G. H. Hall, M. F. Crowley and A. Bloom. Brit. M. J. 2:71-74 (July 12) 1958 [London].

In the course of study to determine the effectiveness of phenylethyldiguanide (D. B. I.) as a hypoglycemic agent in diabetes of all grades of severity, to gauge its side-effects, and to compare its mode of action with that of insulin and tolbutamide, 40 diabetic patients were admitted to the wards. The subjects ranged in age from 18 to 78 years, with a mean average of 57 years. A significant fall in blood sugar levels was observed in 24 of the 40 patients in response to a single 150-mg. dose of D. B. I. The response began to be apparent at 4 hours and reached its maximum at 6. Although there was no significant change in the blood sugar levels during the period of dietary restriction alone, administration of D. B. I. led to a progressive fall in the mean blood sugars, the lowest level being attained by the 6th day of treatment. The urinary output of sugar reflected the blood sugar levels, and there was no evidence of an altered renal threshold. The 5 patients whose life depended on the administration of insulin developed ketosis very rapidly when insulin was withdrawn; their condition was not alleviated by the administration of D. B. I., although there was a small fall in the blood sugar level. In the remaining 35 patients only occasional positive "acetests" were recorded prior to treatment. After the administration of D. B. I. 11 of the 35 exhibited intermittent acetonuria of greater frequency and concentration than prior to treatment, although normoglycemia and aglycosuria prevailed. No effect of D. B. I. could be demonstrated on either plasma amino-acid nitrogen or serum inorganic phosphorus values. An inverse relationship was found to exist regarding the severity of diabetes and the response to D. B. I., patients with milder or moderately severe diabetes showing a fall in blood sugar level in response to the administration of D. B. I. Of the 14 newly diagnosed diabetics, 12 exhibited a good hypoglycemic response to D. B. I., and 5 of these did not have a relapse when D. B. I. was withdrawn. Of the patients with diabetes of long standing, 17 showed some hypoglycemic response, but none could subsequently be managed by diet alone, the impression being that D. B. I. was more effective in diabetes of recent onset. No fewer than 26 of the 40 patients developed gastrointestinal symptoms while receiving the drug; these symptoms abated upon discontinuance of the therapy. In 2 patients in whom tolbutamide had been employed unsuccessfully, D. B. I. was effective in lowering the blood sugar level. In 3 other patients in whom D. B. I. had produced normoglycemia and in whom treatment was discontinued because of nausea and vomiting, tolbutamide was slower and less effective in reducing the blood sugar value. It was impossible, as previously planned in 25 of the 40 patients, to administer D. B. I. for 6 weeks because of unpleasant side-effects or because an adequate fall in blood sugar level had not been realized. Six of the remaining 15 patients are still receiving D. B. I., and their condition is satisfactorily controlled.

Treatment of Acute Leukemia in Adults with Massive Doses of Prednisone and Prednisolone. N. B. Granville, F. Rubio Jr., A. Unugur and others. New England J. Med. 259:207-213 (July 31) 1958 [Boston].

The authors report on 20 consecutive cases of acute leukemia in adults treated with massive doses of prednisone. The first 10 patients received 1,000 mg. per day; the second 10 patients received 250 mg. per day. Prednisone and prednisolone were used interchangeably and were given orally in doses of either 250 mg. every 6 hours or 125 mg. every 12 hours for a period of 2 weeks, after which time the dosage was carefully reduced to a maintenance dosage of 5 to 50 mg. per day. Only 3 of the patients treated with 1,000 mg. of prednisone per day were able to tolerate the medication for the entire 2-week period, the drug being withdrawn in 5 cases because of undesirable side-effects; 2 patients died in less than a week after the institution of therapy. The 250-mg.-per-day regimen was better tolerated, 9 out of 10 patients receiving the full course for 2 weeks. Three complete remissions (hematological, clinical, and bone marrow) and 1 partial remission occurred in the 1,000-mg. group and 2 complete remissions and 1 partial remission in the 250-mg. group. Remarkable symptomatic improvement was evident within 24 to 48 hours of treatment in most patients, the outstanding changes including the development of a striking sense of well-being, a marked increase in appetite, and, objectively, defervescence and decreased bleeding. Since corticosteroids or corticotropin (ACTH) had been employed prior to massive prednisone therapy in 2 instances and since a short course of mercaptopurine therapy had been given to 3 patients in the 1,000-mg. group in whom complete remission was noted, the value of prednisone could not be fully assessed. No previous therapy was noted in the 250-mg. group; however, the single clear-cut remission appeared only after a brief course of mercaptopurine therapy. Five of the patients in the 1,000-mg. group had an undesirable side-effect—namely, the appearance of an agitated depression bordering on frank psychosis—which did not occur in any of the patients in the 250-mg. group. In the instances in which relapse occurred, it was not possible to induce a second remission with massive prednisone therapy either singly or in combination with mercaptopurine. Although the percentage of remissions (25%) cannot be considered very striking, it does compare favorably with other therapeutic methods. The therapy with massive doses of prednisone appeared to be at least as effective as that with mercaptopurine, and in the 250-mg. dosage it seemed least injurious.

Hemodialysis: Technique, Effect and Indications. S. Gjørup, O. Munck and J. H. Thaysen. Ugesk. læger 120:893-897 (July 10) 1958 (In Danish) [Copenhagen].

Hemodialysis is regarded as a valuable and at times indispensable means of treatment of grave acute renal insufficiency. Conservative treatment is of fundamental importance in all cases independently of their duration and is not made superfluous by hemodialysis. In recent years it has become the practice to dialyze early in the course of uremia, and it is recommended that patients with acute renal insufficiency be transferred to a special dialysis section, at the latest 3 days after the onset of uremia. The dialyses, carried out to date, have shown that the treatment is tolerated surprisingly well even by extremely ill and older arteriosclerotic patients. If there is an acute reversible renal disease of such severity that hemodialysis is indicated, contraindications will rarely be absolute. In more recent dialysis of patients with hypertension, the blood pressure has been regulated by hypotensive substances. In patients with grave uremia, dialysis is performed in spite of bleeding from mucous membranes. The uremic changes in the mucous membranes disappear to a great extent after one dialysis, so that possible repeated treatment is tolerated without complications of this kind. The main indication for hemodialysis is wholly or partly reversible renal insufficiency of acute onset, especially shock kidney. There seems now to be agreement that, other things being equal, frequent dialyses to prevent grave, long-continued uremia lead to fewer complications both during the dialyses and during the continued convalescence.

Treatment of Cancer of the Prostate with "Depot" Estrogens. D. Salsano and M. Alpi. Minerva med. 49:2367-2370 (June 13) 1958 (In Italian) [Turin, Italy].

Estradiol valerate was administered by injection to 14 patients with cancer of the prostate, 5 of whom had not previously received any chemotherapy. The drug was administered at varying dosages for a period of from 3 to 8 months. The most efficacious dosage consisted of 20 mg. given every 10 days. However, in some instances a dosage of 10 mg. given every 7 days was sufficient. Subjective improvement in those patients who had not previously received any chemotherapy became perceptible 3 or 4 days after the onset of chemotherapy. There was also an improvement, although to a lesser extent, in the other patients. Subjective improvement affected the state of well-being, there being a decrease in pain in joints and of nerves, daily and nightly pollakiuria, tenesmus, and dysuria. Objective changes consisted in change of the complexion from pale to pinkish, gain in body weight, and appearance of gynecomastia. Vesical residuum, if present, decreased or disappeared after a month of drug treatment. At the beginning of chemotherapy, estradiol valerate affected only insignificantly the morphologic characteristics of the neoplastic lesion of the prostate, but in 7 patients who received more than 250 mg. of the drug the cancerous mass changed in consistency from a hard to a fibrinous tissue without any change in the total size of the prostate. Chemotherapy benefited for 5 months one patient who had cancer of the prostate in an advanced stage, accompanied by bone metastases; afterward the condition of this patient deteriorated. The tolerance of the patients to the drug was good and, in the opinion of the authors, was superior to all other preparations of estrogens. It is suggested that the interval between 2 succeeding administrations of the drug be shortened from 10 to 7 days for large doses (20 mg.) and from 7 to 5 days for small doses (10 mg.), respectively, whenever the original symptoms relapse.

Intraperitoneal Neomycin in the Treatment of Acute Bacterial Peritonitis. H. G. Greene. Surg. Gynec. & Obst. 107:169-172 (Aug.) 1958 [Chicago].

Twenty of the group of 1,529 patients subjected to laparotomy developed acute bacterial peritonitis of such severity that the usual antibiotics were considered inadequate, and the patients were, therefore, given neomycin intraperitoneally. The patients, 13 of whom were male, ranged in age from 5 to 91 years, with a median age of 56 years. Nine had perforated appendixes; 6 had perforations of other viscera; and 5 had other lesions. No toxic effects of the drug were noted. Seven deaths (35%) occurred, 6 of the patients succumbing from causes other than peritonitis. The median hospital stay was 3 weeks. Sixteen patients suffered postoperative fever beyond the first 3 hospital days, the longest febrile course lasting 34 days and the median being 9 days. Six of the 13 survivors developed postoperative complications, 4 of them having wound abscesses, 1 having a pelvic abscess, and 1 a dehiscent abdominal wound. The original peritoneal culture showed no growth in 3 patients. In 5 patients a bacterial species was present; 8 patients had 2 species, and 4 had 3. The most common pathogens were those of the coli-aerogenes group which were present in 13 patients, followed closely by the streptococci of the viridans groups which were present in 7. In view of the innocuousness of this type of therapy and of the low mortality rate (5%) from infection, neomycin administered intraperitoneally in moderate-sized, divided doses is recommended as an adjunct to surgery for patients with severe acute bacterial peritonitis.

PATHOLOGY

A Comparison of Results Obtained from Transplantation and Replantation Experiments Using Syrian Hamster Teeth. H. I. Myers and V. D. Flanagan. Anat. Rec. 130:497-507 (March) 1958 [Philadelphia].

The authors performed transplantation and replantation experiments in 30-day-old Syrian hamsters which were anesthesized with intraperitoneally injected pentobarbital. The 3 molar teeth in these animals were fully erupted, and the roots were essentially fully formed. Bilateral mandibular second molars were extracted and replaced immediately in the socket in 15 animals. Sixteen litter-mate animals were used for the transplantation experiments. In each case, bilateral mandibular second molars of animal A were extracted and placed in sterile sodium chloride solution. Then bilateral second molars of animal B were extracted and also placed in sterile sodium chloride solution. The respective teeth of animal A were then placed in the sockets of animal B, and the teeth of animal B were placed in the sockets of animal A. These paired animals were kept in the same cage. The animals in each case were awake shortly after the surgical procedure and were quite alert within 1 hour. After 30 days the animals were killed; the mandibles were removed and placed in 10% formalin for 2 weeks. The tissues were electrolytically decalcified, paraffin embedded, and cut; every 10th section was mounted and stained with hematoxylin and eosin.

The success of the experiments was judged by the extent of the viability of the pulp, degree of attachment of the peridental membrane, amount of migration of the epithelial attachment apically, and extent of root resorption. Pulp, epithelium, and peridental membrane tissues proved to have the inherent capacity for complete regrowth. The pulpal regrowth occurred with greater difficulty than the regrowth of the other elements. Since regrowth occurred as well in the transplantation experiments as in the replantation experiments, no evidence of tissue incompatibility was noted. It would seem, therefore, that it is just as feasible to transfer a tooth from one hamster to another as it is to replant a tooth in the same hamster.

Tuberculosis Antibodies in Patients with Boeck's Sarcoid. W. Müller, K. Wurm and H. Reindell. Beitr. Klin. Tuberk. 118:229-243 (No. 4) 1958 (In German) [Berlin].

The authors performed hemagglutination and hemolytic modification tests for tuberculosis antibodies, according to Middlebrook and Dubos' technique, on serums obtained from 111 patients with sarcoidosis, from 60 patients with active pulmonary tuberculosis, from 28 patients with tuberculosis of lymph nodes, and from 50 normal persons. Tuberculosis antibodies were detected significantly more frequently in the serums obtained from patients with sarcoidosis than in those obtained from normal persons. Tuberculosis antibodies were detected less frequently in the serums of patients with sarcoidosis than in those of patients with pulmonary tuberculosis and tuberculosis of lymph nodes. No relationship between the occurrence of tuberculosis antibodies in the serums of patients with sarcoidosis and the stage of the disease, its activity, course, and duration, could be observed. Nor was any unequivocal parallelism between tuberculin sensitivity of the skin and the occurrence of serologically detectable circulating tuberculosis antibodies found. There was no relationship between the changes in the serum protein levels (such as increases in alpha and gamma globulin contents) in the serums of patients with sarcoidosis and the occurrence of tuberculosis antibodies in these serums.

The increased occurrence of tuberculosis antibodies in the serums of patients with sarcoidosis may be considered the result of a reaction to Mycobacterium tuberculosis. The serologic findings, therefore, seem to support the concept of tuberculous causation of sarcoidosis. An attempt was made to interpret the phenomenon of a weak or absent skin reaction of patients with sarcoidosis to tuberculin as a genuine dissociation between the cell-bound tuberculosis autibodies, which are responsible for the skin reaction, and the circulating antibodies, the presence of which has been demonstrated serologically. The reduced content of cell-bound antibodies in the skin is an immunological defect, which depends on a disturbance either of the formation or of the transportation of the cell-bound tuberculosis antibodies, while the formation of the circulating antibodies may be normal or increased.

RADIOLOGY

Interstitial Irradiation of the Pituitary Body With Yttrium 90: Indications, Technique, and Results. A. M. Dogliotti and A. Ruffo. Minerva med. 49: 2383-2389 (June 16) 1958 (In Italian) [Turin, Italy].

Destruction of the pituitary body by interstitial irradiation with radioyttrium (Y^{90}) was carried out in the treatment of 43 patients with advanced neoplastic disease. In 22 the diagnosis was carcinoma of the breast. The treatment consisted in implanting 3 small rods of Y^{90} through the left nostril into the pituitary body. There was no operative mortality, but there was one postoperative death attributed to meningitis. Autopsy on 3 patients revealed that the extent of destruction around the Y^{90} rods reached an area of from 3 to 4 mm. It is probable that Y^{90} permanently inhibited the function of the nonnecrotic cells. During the 30 days immediately after the operation, general improvement (decrease in or disappearance of pain, restoration of appetite, and gain in body weight) was evident in about 16 patients with mammary carcinoma (75%), and local improvement in the neoplastic lesion was found in about 10 patients with mammary carcinoma (45%). These improvements persisted on the average for 6 months, but no longer than 12 months.

Destruction of the pituitary body with Y^{90} seemed to have affected the malignant growth, other than carcinoma of the breast, in only 2 of 15 patients (14%). However, this procedure brought about subjective improvement in a patient with adenoma of the pituitary. The attempt to reduce the thyrotropic activity of the pituitary with Y^{90} in 2 patients with exophthalmos was crowned with such remarkable success that the authors recommended the procedure for refractory cases of the disease. Clinical improvement in one patient still persisted a year after the treatment with Y^{90}. The opinion of the authors is that a discriminating application of the interstitial irradiation of the pituitary body with Y^{90} is a useful procedure for the management of certain types of neoplasms, particularly those at the initial phase of growth, which are related to the pituitary body.

ANESTHESIA

Anesthetic Problems in Cardiopulmonary Bypass for Open Heart Surgery: Experiences with 200 Patients. A. S. Keats, Y. Kurosu, J. Telford and D. A. Cooley. Anesthesiology 19:501-514 (July-Aug.) 1958 [Philadelphia].

The authors review anesthetic problems in the management of 200 patients who underwent cardiopulmonary bypass for intracardiac surgery. This group included 102 patients with ventricular septal defects, 28 with atrial septal defects, and 18 with tetralogy of Fallot; the others had such defects as atrioventricularis communis, transposition of the great vessels, and various forms of aortic or pulmonary stenosis. The authors used bubble-type oxygenators with low-flow perfusion in all their patients. The perfusion rate for each kilogram of body weight per minute was 35 cc. for adults, 40 to 50 cc. for children, and 50 cc. for infants. In the first 60 patients, coronary artery perfusion was permitted continuously during bypass, and on rare occasions coronary blood was returned to the pump. In the next 73 patients, asystole of the heart during perfusion was accomplished by cross clamping the aorta and injecting potassium citrate solution into the proximal part of the aorta and coronary system. In the last 67 patients the proximal part of the aorta was clamped without chemical arrest of the heart and the clamp released intermittently to allow coronary blood flow.

Serious arrhythmias from extensive manipulations of the heart were minimized by the use of light general anesthesia. Hyperventilation was deliberately used to provide a high-tension tissue store of oxygen by nitrogen washout and a respiratory alkalosis which compensated for the mild metabolic acidosis produced by low-flow perfusion. It was not found necessary to add any anesthetic agent or carbon dioxide to the oxygenator during cardiopulmonary bypass. Curare was administered prior to bypass to eliminate striated muscle contraction and to minimize metabolic acidosis. Its use with complete collapse of the lungs provided ideal operating conditions and had no deleterious effects. For blood replacement, fresh citrated blood was used for transfusion throughout the procedure in small children; in larger children and adults, stored citrated blood was used before bypass and fresh blood after bypass. Most patients were hypothermic after bypass; these patients were slowly rewarmed in the recovery room by a heating blanket. Ventricular fibrillation occurred in 33 patients during or immediately after bypass. It was most frequent after the use of potassium citrate to produce cardiac asystole. Twenty-one of the 33 patients with ventricular fibrillation were successfully defibrillated. A significant heart block occurred in 11 patients, presumably from sutures placed through the conduction bundle. If an adequate blood pressure could be maintained at the slow heart rate, usually no ill-effects ensued. The use of a mechanical pacemaker was not successful. A tracheotomy was performed at the end of the operation when large amounts of blood were removed through the endotracheal tube. Usually bloody secretions in the trachea were the results of pulmonary edema, but at times trauma from extensive retraction of the lungs was a causative factor. Tracheotomy facilitated removal of secretions and provided proper ventilation of the lungs.

There were 45 deaths in this series of 200 patients, a hospital mortality of 22.5%. Nineteen of the deaths occurred in the 40 infants under 1 year of age. This high death rate was chiefly the result of the severe heart disease. Over 90% of the deaths occurred in either the operating or the recovery rooms or within the first 3 days after operation.

PHYSIOLOGY

The Gastroesophageal Mechanism: II. Further Experimental Studies in the Dog. J. H. Meiss, J. H. Grindlay and F. H. Ellis Jr. J. Thoracic Surg. 36: 156-165 (Aug.) 1958 [St. Louis].

In the first of 4 groups of mongrel dogs studied in an attempt to determine the nature of the mechanism responsible for gastroesophageal continence, the esophagogastric junction was removed and the esophagogastric anastomosis made in several ways. In the second group the acute esophagogastric angle was eliminated by resection of the fundus or by division of the stomach below the junction and subsequent anastomosis of the upper rim to the fundus. The animals in group 3 underwent formation of a partial thoracic stomach. The mucosal rosette was eliminated in animals of group 4, in addition to the elimination of the acute esophagogastric angle and the diaphragmatic pinchcock. Esophagitis developed in all the animals in the first group, indicating that an acute esophagogastric angle and the diaphragmatic pinchcock cannot prevent esophagitis after removal of the esophagogastric junction. Esophagitis did not develop in any of the animals in the second group; therefore, an acute esophagogastric angle is not necessary to prevent reflux esophagitis in dogs. The results of studies in the third group of dogs revealed that the diaphragmatic pinchcock is not an essential mechanism for the prevention of reflux esophagitis. Esophagitis did not develop in any of the dogs in the fourth group in whom the mucosal rosette was eliminated, in addition to the elimination of the acute esophagogastric angle and the diaphragmatic pinchcock. This left the presence of an intrinsic sphincter mechanism in the region of the esophagogastric junction as the only possible mechanism which could have prevented esophagitis.

PUBLIC HEALTH

Epidemic Virus Meningitis Due to ECHO 9 Virus in Newfoundland. J. W. Davies, A. McDermott and D. Severs. Canad. M. A. J. 79:162-167 (Aug. 1) 1958 [Toronto].

In recent years there have been numerous reports of epidemic meningitis due to virus infection in which a rubelliform type of rash has been present in a large percentage of the cases. During 1957 a total of 44 patients with aseptic meningitis of this type were admitted to the Isolation Hospital in St. John's, Nfld., slightly more than one-third of the total admissions occurring during the month of August. The highest incidence (40.9%) occurred in the 5-to-9-year age group, the disease affecting the males predominantly in a ratio of 1.5 males to 1 female. In the 20-and-over age group this ratio was reversed, females predominating 5 to 1. A pronounced feature of this epidemic was the high attack rate—the secondary attack rate was slightly in excess of 50%—among family contacts, nearly one-third of the adults in contact with a patient at home being affected. The high proportion of positive viral isolations from throat washings, as compared with fecal isolations, suggests that droplet infection is the more important mode of spread.

Inasmuch as poliomyelitis and Coxsackie virus infections were absent in the population at this time, the clinical picture of enteric cytopathogenic human orphan (ECHO), type 9, virus infection appeared to conform with the following pattern: (1) history of biphasic illness, (2) highly contagious type of illness with a high attack rate among families, (3) typical exanthem, (4) two-phase temperature plot, (5) moderate pleocytosis and normal chemical findings in spinal fluid, and (6) leukopenia with relative lymphocytosis. Pathological material from 36 patients suspected of virus infection which was submitted for examination yielded virus on human amnion or monkey-kidney cell tissue culture in 17 cases. The virus was isolated from 13 of 28 specimens of spinal fluid, from 12 of 34 throat cultures, and from 5 of 28 rectal swabs or stools. The illness commenced generally with prodromal symptoms of anorexia, fever, chills, generalized muscular aches and pains, drowsiness, and headache.

Observations on the Potency and Safety of Poliomyelitis Vaccine (Salk Type) Currently Used. K. Sunada, R. K. Gerloff, D. Brock and others. A. M. A. J. Dis. Child. 96:125-130 (Aug.) 1958 [Chicago].

A total of 605 children, ranging in age from 5 to 15 years and residing in widely separated areas of Idaho, were given poliomyelitis vaccine, 143 uninoculated children serving as control subjects. Each child received 3 intramuscular doses; the first 2 injections were given in the spring and early summer of 1956, the second injection 1 month after the first, and the third injection was given 7 months after the second. The injection of the lots of vaccine used in this study was not accompanied by any illness suggestive of poliomyelitis in either the vaccinated children or their contacts. In the control children, natural infection and a concommitant increase in the antibody titer from 1:8 to 1:64 were evident in only one child in the early stages of the experiment and were impossible to calculate at a later date as many of the controls requested vaccination.

When type 1 antibody was present alone in the preinjection serum, type 2 antibody appeared in 94% of the children after the first injection. A similar response (72% conversion to type 2) was forthcoming when type 3 antibody was present in the preinjection serum. When antibodies against types 1 and 2 were present, type 3 antibody appeared in a higher percentage of children (50%) than when types 1 and 2 were present singly (13 to 22%). These differences still persisted after inoculation (86% as compared with 51 to 67%). In the event that antibody types 1 and 3 or types 2 and 3 were present in the preinjection serum, all 3 types generally appeared after only one injection. After one dose of vaccine, type 2 antibody appeared in the serums of 20% of those children who did not demonstrate antibodies in the serums prior to vaccination, types 1 and 3 being present in minimal amounts (7 and 4%). After 3 injections, 73 and 29% of the children showed antibody types 1 and 3, and practically all (99%) had type 2. While type 2 antibody resulting from natural exposure had a marked influence on the development of heterotype antibody after vaccination, type 2 antibody resulting solely from vaccination did not exert a comparable influence. The difference in the heterotypical response which did occur in children possessing type 2 antibody, as compared with those lacking this antibody, reflected in all probability not a true cross antigenic effect but rather a difference in the innate ability of the individual child to produce said antibodies.

In general, the data revealed that the 3 components of the poliomyelitis vaccine acted as specific entities and that they had little, if any, antigenic relationship to one another, the final development of an antibody to any one type of antigen resulting from a cumulative effect of that type of antigen rather than from a cross effect between types. A further dose given 3 months after the preceding one to 39 children lacking one or more antibody types after the customary 3-dose injection regimen resulted in all 12, who had possessed antibodies against one type of virus prior to the first injection of vaccine, becoming "triple positive," except for one child who lacked type 3 antibody. Of the remaining 27 children who had been "triple negative" prior to vaccination, 85, 100, and 56% possessed antibody types 1, 2, and 3, respectively, after the 4th dose.

The Epidemiology of Aseptic Meningitis and Related Nonspecific Disease in Connecticut, 1957: Virological and Clinical Studies. L. Dubin and D. M. Horstmann. Yale J. Biol. & Med. 30:429-441 (June) 1958 [New Haven, Conn.].

During the summer of 1957, virological and serologic investigations were carried out on specimens from 56 patients in Connecticut in whom nonparalytic poliomyelitis, aseptic meningitis, or nonspecific febrile illness had been diagnosed, and from 1 patient with paralytic poliomyelitis. It was possible to make a specific etiological diagnosis on 33 of the patients. The absence of poliomyelitis virus was striking. Only 2 isolations of the type 1 virus were made. This experience is in line with what occurred in the rest of the United States and is markedly different from the experience of the preceding years.

ECHO and Coxsackie viruses played a definite role as the etiological agents of aseptic meningitis and associated nonspecific febrile disease in various parts of Connecticut during the summer of 1957. In addition, agents not belonging to any of the known enterovirus types were also active in the same area at the same time and were associated with clinical syndromes similar to those produced by ECHO and Coxsackie viruses. ECHO virus type 9 was the most commonly isolated enterovirus, a finding which differs markedly from the Connecticut experience of the previous 2 years. An unusual clinical feature of the cases studied was the presence of a rubella-like rash, associated not only with ECHO 9 virus infection, but with Coxsackie A-9 and with unidentified agents as well. The rash was similar in character and distribution in the 3 etiological groups.

clinical experience. The result is a concise, practical book from which much theoretical and questionable material has been omitted. The subjects are logically presented in nine separate sections and an appendix in the following order: normal and abnormal pregnancy, normal and abnormal labor, the puerperium, operative obstetrics, the newborn baby, radiology, and maternal and fetal mortality. Informative and skillfully executed line drawings profusely illustrate all the subjects. The book includes a great deal of useful information concerning patients and benefits of state insurance and other matters of interest chiefly to the English practitioner. There are some differences in the accepted practices in Great Britain and those current in the United States, but fundamental principles are the same. Natural delivery is recommended in all cases unless operative procedures are indicated. Most obstetricians in the United States prefer to terminate labor by an episiotomy and outlet forceps after the head begins to bulge the perineum. An intelligent approach to abdominal delivery and the management of most complications is presented. The use of the external version to correct breech presentation in late pregnancy carried out with the patient under anesthesia, however, is questionable. The induction of labor in patients who are two weeks post-term and have babies of 6 lb. (2,721 kg.) or more in weight is not uncommon in Britain but is rarely practiced in the United States. It was a real surprise to read that paste can be introduced into the uterus as a method of therapeutic abortion. The format of the book, an appropriate quotation from Shakespeare which heads each chapter, an interesting cover, and legible printing add much to its appeal. It can be read with profit by American physicians as well as those in Great Britain.

Industrial Hygiene and Toxicology. Volume I: General Principles. Frank A. Patty, editor. [To be in 3 volumes.] Second edition. Cloth. $17.50. Pp. 830, with illustrations. Interscience Publishers, Inc., 250 Fifth Ave., New York 1; Interscience Publishers, Ltd., 88/90 Chancery Lane, London, W. C. 2, England, 1958.

The revised edition of this treatise on industrial hygiene and toxicology has been expanded to three volumes. Volume 1 deals with general principles and contains chapters by the editor and 17 contributors. To keep abreast with the extension of industrial hygiene into new fields, chapters on human engineering and industrial safety, industrial sanitation, air pollution, industrial noise and the conservation of hearing, lighting for seeing, and heat control in the hot industries were added. Extensive revisions were made in the chapters on industrial hygiene records and reports, the pulmonary dust diseases, radiant energy, and ventilation. The remaining chapters required less extensive revision. This volume contains a wealth of useful and authoritative information in the various specialties. Many pertinent references are given to the original literature. The revised edition more than ever is an outstanding reference source and textbook for students and practitioners in the field of industrial hygiene and toxicology.

A Symposium on Non-Toxaemic Hypertension in Pregnancy. Edited by Norman F. Morris, M.D., M.B., B.S., Reader in Obstetrics and Gynaecology, University of London, London, and J. C. McClure Browne, B.Sc., M.B., B.S., Professor of Obstetrics and Gynaecology, University of London. Cloth. $8.50. Pp. 243, with 78 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Place, Portman Sq., London, W.1, England, 1958.

This symposium was held in London in July, 1957. The topics discussed included genetic studies of hypertension in pregnancy, the course of pregnancy complicated by essential hypertension, renal hypertension and pregnancy, pheochromocytoma, coarctation of the aorta and pregnancy, and the recognition and management of these conditions. The subject is presented as well as could be expected, considering the gross inadequacy of the existing scientific data. One is impressed by how far the obstetric field is behind in its understanding of hypertension. Still more discouraging is the fact that so little is being done to correct this inadequacy. A few of the more interesting points under discussion centered around the controversy as to whether a distinction can be made between a normal and hypertensive arterial pressure level. It is the old problem of trying to equate a disease with a single clinical sign. McMichael clearly disagrees with Pickering, who is a proponent of the statistical view. Duff concludes that the increased peripheral resistance in essential hypertension does not involve the upper extremities and does not depend on structural vascular narrowing or on overactivity of the sympathetic nerves, but these are rather large conclusions for the evidence submitted. The high incidence of gestoses in England is surprising. It is not made clear by Milne how mecamylamine differs completely from the quarternary ammonium blocking agents, although his vignette of the pharmacology of antihypertensive drugs is excellent. Theobald believes that weekly antenatal care is associated with a sharp fall in the incidence of eclampsia. It is hard to believe that the veratrum used in the good old days at Queen Charlotte's really did as much good as Mr. Bourne suggests. Any symposium on hypertension is the better for having Dr. Robert Platt in attendance. This one was no exception. Max Rosenheim, in his concluding remarks, hopes for another similar symposium. This would be worthwhile only if fresh data were forthcoming to arouse and sustain both interest and purpose.

BOOK REVIEWS

Principles of Internal Medicine. Editors: T. R. Harrison and others. Third edition. Cloth. $18.50. Pp. 1782; 57, with 211 illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E. C. 4, England; 253 Spadina Rd., Toronto 4, Canada, 1958.

This book is becoming one of the standard textbooks in its field. The necessity for a third edition within eight years is evidence of its reception. As the book has proceeded through these editions, additional editors have been added to achieve uniformity of approach. For the new edition, the unconventional arrangement, as compared with other books in the field, has been retained but modified. New sections have been added by experts in their fields. The list of contributors is extensive and impressive. It encompasses most of the major medical schools in the United States and a few from abroad. The book begins with a short section on the approach to the patient by the physician. Part 2, "Cardinal Manifestations of Disease," takes up individual symptoms or signs from a broad medical point of view. The section on disorders of nervous function has been expanded and strengthened. Part 3 considers biological phenomena, such as inheritance, aging, neoplasia, and metabolic pathways, and the principals of electrophysiology. Part 4 systematically discusses metabolic and endocrine disorders, part 5, those due to physical and chemical agents, and part 6, those due to biological agents—the infectious diseases. Part 7 contains a short discussion of allergic diseases and drug reactions; Part 8 takes up the various organ systems. The last part is a general discussion of the care of the patient and covers principles of nutrition, sedation, and transfusion, as well as production of disorders by the physician.

Most of the sections are excellently written. The format, with narrow margins and two columns on a page, is pleasing to the eye and can be easily read. Scattered through the book are tables of particular tests comparing normal values with those found in specific diseases, as well as tables for comparison of effects of lesions. At the end in an appendix are tables of laboratory values of clinical importance. Six excellent color plates of patients and lesions are scattered through the book. A small number of clear illustrative diagrams is also included. The references at the end of each section are carefully selected, are few in number, and include articles through 1956. This book should serve well as a textbook for medical students and, for general practitioners and internists in practice, as a reference work.

Mirror to Physiology: A Self-Survey of Physiological Science. By R. W. Gerard, M.D., Ph.D., Sc.D., Professor of Neurophysiology in Psychiatry and Physiology, University of Michigan, Ann Arbor. Cloth. Pp. 372, with illustrations. American Physiological Society, 9650 Wisconsin Ave., Washington 14, D. C., 1958.

This book gives the results of a survey undertaken by the American Physiological Society in an effort to define physiology, to discover what kind of people are now classified as physiologists, and to consider how to interest an adequate proportion of the nation's manpower in cultivating this important field of science. In the foreword, W. O. Fenn expresses the belief that, if there is any serious deficiency in physiology at present, it is probably in the recruitment of personnel of high competence. Much space is devoted to the technical problems of the survey itself, and this should be instructive to other organizations planning similar ventures. Quantitative data were obtained as to the activities, employment, and income of physiologists, their occupational motivations, satisfaction, and mobility, and their research activities and programs. There are chapters on research facilities and support, publications and societies, professional training and recruitment, and public relations and education. A closing chapter interprets the results and makes recommendations. It is followed by an appendix and an index. This book represents an earnest and costly effort to define and count some extremely elusive entities. It is hard to say how successful this effort has been, but its importance is undeniable. This survey of one aspect of our scientific manpower problem deserves the attention of everyone who may be in a position to direct the engaging of personnel or the application of funds for teaching and research.

A Modern Practice of Obstetrics. By D. M. Stern, M.A., M.B., B.Ch., and C. W. F. Burnett, M.D., F.R.C.S., F.R.C.O.G. Second edition. Cloth. $9. Pp. 258, with 141 illustrations, line drawings by Susan M. Robinson. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Baillère, Tindall & Cox, 7 & 8 Henrietta St., Covent Garden, London, W. C. 2, England, 1958.

This new edition of an English textbook of obstetrics was written for candidates for examination and practitioners of obstetrics. The authors indicate that, where there have been differences of opinion as to procedure, they have relied on their own

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

clinical experience. The result is a concise, practical book from which much theoretical and questionable material has been omitted. The subjects are logically presented in nine separate sections and an appendix in the following order: normal and abnormal pregnancy, normal and abnormal labor, the puerperium, operative obstetrics, the newborn baby, radiology, and maternal and fetal mortality. Informative and skillfully executed line drawings profusely illustrate all the subjects. The book includes a great deal of useful information concerning patients and benefits of state insurance and other matters of interest chiefly to the English practitioner. There are some differences in the accepted practices in Great Britain and those current in the United States, but fundamental principles are the same. Natural delivery is recommended in all cases unless operative procedures are indicated. Most obstetricians in the United States prefer to terminate labor by an episiotomy and outlet forceps after the head begins to bulge the perineum. An intelligent approach to abdominal delivery and the management of most complications is presented. The use of the external version to correct breech presentation in late pregnancy carried out with the patient under anesthesia, however, is questionable. The induction of labor in patients who are two weeks post-term and have babies of 6 lb. (2,721 kg.) or more in weight is not uncommon in Britain but is rarely practiced in the United States. It was a real surprise to read that paste can be introduced into the uterus as a method of therapeutic abortion. The format of the book, an appropriate quotation from Shakespeare which heads each chapter, an interesting cover, and legible printing add much to its appeal. It can be read with profit by American physicians as well as those in Great Britain.

Industrial Hygiene and Toxicology. Volume I: General Principles. Frank A. Patty, editor. [To be in 3 volumes.] Second edition. Cloth. $17.50. Pp. 830, with illustrations. Interscience Publishers, Inc., 250 Fifth Ave., New York 1; Interscience Publishers, Ltd., 88/90 Chancery Lane, London, W. C. 2, England, 1958.

The revised edition of this treatise on industrial hygiene and toxicology has been expanded to three volumes. Volume 1 deals with general principles and contains chapters by the editor and 17 contributors. To keep abreast with the extension of industrial hygiene into new fields, chapters on human engineering and industrial safety, industrial sanitation, air pollution, industrial noise and the conservation of hearing, lighting for seeing, and heat control in the hot industries were added. Extensive revisions were made in the chapters on industrial hygiene records and reports, the pulmonary dust diseases, radiant energy, and ventilation. The remaining chapters required less extensive revision. This volume contains a wealth of useful and authoritative information in the various specialties. Many pertinent references are given to the original literature. The revised edition more than ever is an outstanding reference source and textbook for students and practitioners in the field of industrial hygiene and toxicology.

A Symposium on Non-Toxaemic Hypertension in Pregnancy. Edited by Norman F. Morris, M.D., M.B., B.S., Reader in Obstetrics and Gynaecology, University of London, London, and J. C. McClure Browne, B.Sc., M.B., B.S., Professor of Obstetrics and Gynaecology, University of London. Cloth. $8.50. Pp. 243, with 78 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Place, Portman Sq., London, W.1, England, 1958.

This symposium was held in London in July, 1957. The topics discussed included genetic studies of hypertension in pregnancy, the course of pregnancy complicated by essential hypertension, renal hypertension and pregnancy, pheochromocytoma, coarctation of the aorta and pregnancy, and the recognition and management of these conditions. The subject is presented as well as could be expected, considering the gross inadequacy of the existing scientific data. One is impressed by how far the obstetric field is behind in its understanding of hypertension. Still more discouraging is the fact that so little is being done to correct this inadequacy. A few of the more interesting points under discussion centered around the controversy as to whether a distinction can be made between a normal and hypertensive arterial pressure level. It is the old problem of trying to equate a disease with a single clinical sign. McMichael clearly disagrees with Pickering, who is a proponent of the statistical view. Duff concludes that the increased peripheral resistance in essential hypertension does not involve the upper extremities and does not depend on structural vascular narrowing or on overactivity of the sympathetic nerves, but these are rather large conclusions for the evidence submitted. The high incidence of gestoses in England is surprising. It is not made clear by Milne how mecamylamine differs completely from the quarternary ammonium blocking agents, although his vignette of the pharmacology of antihypertensive drugs is excellent. Theobald believes that weekly antenatal care is associated with a sharp fall in the incidence of eclampsia. It is hard to believe that the veratrum used in the good old days at Queen Charlotte's really did as much good as Mr. Bourne suggests. Any symposium on hypertension is the better for having Dr. Robert Platt in attendance. This one was no exception. Max Rosenheim, in his concluding remarks, hopes for another similar symposium. This would be worthwhile only if fresh data were forthcoming to arouse and sustain both interest and purpose.

QUESTIONS AND ANSWERS

PROGESTERONE FOR OVARIAN CYSTS

To the Editor:—*Please comment on the rationale of using oral progesterone therapy for small painful cysts of the ovaries. These cysts frequently occur, cause a lot of abdominal discomfort, and sometimes alter the menstrual cycle. Are there any references to this subject in the literature? Would treatment with cyclic estrogens help the condition? I am now giving progesterone orally during the last half of the menstrual cycle. Could such treatment have a salutary effect?*

Samuel S. Lambeth, M.D., Maryville, Tenn.

Answer.—The administration of progesterone produces a progestin effect on estrogen-primed endometrium and a suppressive effect on luteinizing hormone from the anterior pituitary. If the etiology of the small painful cysts of the ovary is endometriosis, the administration of progesterone should aggravate, rather than improve, the condition.

In most instances multiple small cysts of the ovaries represent a number of unruptured graafian follicles secondary to either an oophoritis which mechanically prevents ovulation or a functional disturbance of the pituitary-ovarian cortex axis. Clinically, this is most often manifested by altered menstrual cycles. Pituitary gonadotropin suppression by large doses of estrogen in regulated cycles sometimes produces symptomatic relief. Several aspects of the effects of endocrine therapy are discussed in the *American Journal of Obstetrics and Gynecology* (vol. 75, Jan., Feb., 1958).

CHEESE AND SERUM CHOLESTEROL LEVEL

To the Editor:—*Would the eating of 1.5 lb. of cheese a week—not cream cheese—tend to bring about an excess accumulation of cholesterol in a patient's system? What suggestions should be made to such a patient?*

M.D., North Carolina.

Answer.—There is no evidence to implicate the ingestion of 1.5 lb. of cheese a week with the development of an excess amount of cholesterol in the blood. There are so many variables concerned with the amount of cholesterol present in the body that one cannot blame any one dietary item. At the present time, there is no good evidence indicating that a high blood cholesterol level is a sign that one will have a heart attack. Apparently, there is a statistical relationship between high blood cholesterol levels and heart attacks, but, as yet, there has been shown no cause and effect relationship. The Food and Nutrition Board of the National Research Council has recently published a pamphlet in which this conclusion is made: "Evidence to support the concept that high levels of plasma cholesterol, per se, in man are atherogenic is far from conclusive. Circumstantial evidence, however, indicates that the kind, or amount, of dietary fat is in some way related to some stages of atherosclerosis in man. A reduction in intake of the more saturated fats in the diet may ultimately prove desirable for health but is not yet mandated by currently available evidence."

VENOUS SPIDERS

To the Editor:—*Please comment on the small, superficial, radiating types of varicosities so often seen on the anterior and posterior surfaces of the thighs of young women. This condition is encountered from time to time in individuals who are concerned only because of the cosmetic defect which it presents. Seemingly there is no relationship to the tendency towards varicosities in the lower extremities because it is so often seen in the absence of this finding in a great number of patients. Treatment by injection of sodium morrhuate with tiny (30-gauge) needles has been suggested. I have also tried electrolysis of some of these tiny vesicles, but the results have been equivocal, and the treatment is also painful. Should a young patient with such varicosities continue dancing and drill team activities?*

Harold L. Boyer, M.D., Las Vegas, Nev.

Answer.—Venous spiders appear on the thighs of women independently of varicose veins. Their mode of production is obscure, although a hormonal influence is suggested by their accelerated appearance or growth at puberty, during pregnancy, and after menopause. They frequently radiate from a small central pool. Venous spiders do not cause pain or swelling, they will not ulcerate, and they do seem to run in families. Occasionally, without any obvious injury, they rupture subcutaneously causing a small hematoma and much fear of blood clot.

There seems no reason to prohibit dancing or any athletic activity. Injection of the central pool with a few drops of mild sclerosing solution, with use of a magnifying glass, has been done. The spiders,

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

however, will appear somewhere else. Cautery is inadvisable and leaves a more unsightly scar than the original lesion. Parents, of course, are anxious to prevent any spread of such lesions. Nothing is known to this consultant which would effectively prevent new crops of spiders. Repeated pregnancies definitely aggravate them. Skin preparations may effectively cover them and relieve some of the anxiety relating to their cosmetic appearance.

PROPTOSIS

To THE EDITOR:—*A 41-year-old woman stated that a fluorescent tube (20-watt) exploded in front of her right eye and that powder and glass entered this eye. Four days after the accident, both lids of the right eye were swollen; they remained so, and about two months after the accident bulging of the right eye began to develop. Examination revealed a proptosis of the right eye of about 5 mm., compared to the left. External examination showed bulging of the right eye; conjunctival hyperemia and chemosis of moderate degree; pupil equal, regular, and reactive to light and accommodation; and no limitation of ocular movements in all directions. Findings in fundoscopy were negative. Her vision is 20/20 in each eye. Results of x-ray of the orbits, including optic canals, were negative. Findings in all tests for throid function were also negative. The condition appeared clinically to be pseudogranuloma of the orbit. Please give information as to whether the chemical contents of the fluorescent bulb, as described below, can cause this type of condition: argon gas, very small amount under 3 mm. of pressure; liquid mercury, 50 mg.; fluorescent powder on wall, 5 Gm. of calcium halo phosphate (red), zinc silicate (green), and magnesium tungstate (blue) (although all lamps would contain all of these, the proportion would change depending on the color of the particular lamp); and emission coating at each end of filament, 12 mg. of calcium carbonate, barium carbonate, and strontium carbonate.* *M.D., New Jersey.*

ANSWER.—The mention in the query of a "pseudogranuloma" at once suggests the action of beryllium. Not since 1949 has beryllium entered the standard brands of fluorescent tubes for illumination. There remains the unlikely prospect that an old tube might have been involved. The somewhat precise chemical analysis presumably would have detected beryllium if any had been present. Of the mentioned phosphors, none is known to be capable of inducing the significant findings indicated, notably the proptosis. Several are capable of inducing temporary acute irritation such as was observed. The action of tungsten on the human body, including that on the eye, has not been well explored. There remains the remote possibility that this one substance might be more active than is now established. In general, there is no known reason to attribute the proptosis to the action of the chemicals noted and under the circumstances set forth.

NYLON SENSITIVITY

To THE EDITOR:—*A patient develops a contact dermatitis every time she wears nylon stockings or other pieces of clothing containing nylon. Is there any treatment other than elimination of nylon clothing? Can an antigen be made for injection? If so, where can it be obtained?*

Frank D. Levy, M.D., Philadelphia.

ANSWER.—There is no real effective prophylactic treatment for contact dermatitis due to wearing apparel such as nylon, apart from avoidance. Although commercial allergy laboratories prepare extracts of nylon for skin testing and presumably for treatment, desensitization with this material is questionable and has not met with great success. Before a recommendation is made that all types of nylon be discarded, however, a patch test should be performed in order to determine whether it is the nylon, the dye, or other chemicals used in the processing of the material which is responsible for the dermatitis. The technique of the patch test is described in textbooks on allergy and dermatology. Briefly, it consists of the application of a small piece of the suspected material on a convenient portion of the skin of the patient to be tested, covering with an occlusive dressing, and leaving the material in place for at least 48 hours. A positive skin test will be indicated by a dermatitis at the site of contact. Occasionally the reaction may be delayed. Therefore, it is wise to observe the site where the nylon was placed for several days after removal of the patch. Various colors and types of nylon material and nylon thread should be tested individually in order to determine which type, if any, can be used.

TREATMENT OF MUMPS IN ADULTS

To THE EDITOR:—*Please outline therapy for mumps in a 30-year-old woman. Are antibiotics indicated and will they prevent encephalitis or pancreatitis?* *MD., Illinois.*

ANSWER.—The treatment of a 30-year-old woman with mumps is symptomatic and supportive. Such general measures include rest and relief of pain with analgesics if necessary. Local application of heat or cold may help. There are no significant dietary measures. Headache and symptoms due to increased cerebrospinal fluid pressure occurring in encephalitis due to mumps may be relieved by reducing the pressure toward normal by lumbar drainage. Antibiotics are not indicated, nor will they prevent any of the complications of mumps, including encephalitis and pancreatitis. Gamma globulin prepared from blood collected from patients in the convalescent stage of mumps has been shown to decrease the incidence of orchitis in adult males when given 24 hours or less after the onset of parotitis. Gamma globulin not specifically obtained from patients in convalescence from mumps did not have this effect. Definitive knowledge of the ability gamma globulin obtained from persons in convalescence from mumps to lower the incidence of involvement of the central nervous system or glands other than the parotid in females is not available. The value of steroid hormones for preventing or treating complications of mumps is not established.

PIGMENTATION OF THE GUMS

To the Editor:—*A 16-year-old boy has marked, dark pigmentation of the gums, such as is ordinarily seen in Addison's disease. However, there are no symptoms of this condition. His 17-ketosteroid level is within normal range, and a 24-hour excretion was doubled with the use of ACTH. There is no evidence of heavy metal poisoning. Laboratory studies, such as we are able to do, are within normal range. What other conditions should one consider with increased gum pigmentation in a boy of this age?*

Howard P. Holt, M.D., Yakima, Wash.

Answer.—Pigmentation of the attached gingival tissues, and at times the oral mucosa and lips, will develop in any dark-complexioned patient. This physiological pigmentation usually develops fully during the second decade. This pigmentation is the result of the deposition of increased amounts of melanin. Oral mucosal pigmentation may also be found in patients with intestinal polyposis. It may be present in the familial form of polyostotic fibrous dysplasia (Albright's disease). The administration of certain drugs, for example, quinacrine hydrochloride, may be associated with a yellowish pigmentation of the oral tissues. In the absence of any clinical or roentgenologic findings suggestive of intestinal polyposis or polyostotic fibrous dysplasia, it is most likely that the gingival pigmentation is physiological.

VITAMIN A INTOXICATION

To the Editor:—*Please give advice on what danger, if any, there is in the use of vitamin A. A recent article in an eye, ear, nose, and throat journal gave the impression that vitamin A intoxication could cause intracranial changes.*

M.D., Michigan.

Answer.—Apparently, the body can tolerate quantities of vitamin A 100 times greater than the daily physiological requirement, but there is a definite possibility of harm from the prolonged ingestion of vitamin A in excess of 50,000 I. U. daily. Chronic vitamin A intoxication occurs more frequently in children than in adults. Depending on the severity of the intoxication, the symptoms appearing in children older than 1 year include anorexia, loss of weight, extreme irritability, fretfulness and pruritus, seborrhea-like cutaneous eruptions, fissuring at the corners of the mouth, and cracking and bleeding of the lips. Later symptoms often include hepatomegaly, hydrocephaly, alopecia, painful swellings over the long bones with bone and joint pains and bone tenderness, hyperostosis, deep, hard, and tender swellings in the extremities, cortical thickening in tubular bones, and elevated serum vitamin A levels. Vitamin A intoxication in adults presents symptoms similar to those of hypervitaminosis A in children but usually milder. Structural bone changes are not likely to occur, and bone and joint pains are not so severe. Menstrual alterations, exophthalmos, and pigmentation of the skin are often found. Transitory hydrocephaly is a prominent finding when toxicity is acute.

NUMMULAR ECZEMA

To the Editor:—*A 19-month-old boy has suffered since the age of 8 months from a dermatosis classified as nummular eczema. The lesions are localized on both cheeks, shin, extensor surfaces of extremities, gluteal area, and abdomen. These well defined, reddish brown plaques tend to ooze and to form brownish scabs. There is a slight scaling, no itching, and some infiltration. Fungus studies have not been done. Various modes of treatment have been tried, including that with coal tar and other tar preparations, hydrocortisone cream and lotion, immune globulin, and antibiotics according to culture and sensitivity tests from the skin and from a concomitant chronic tonsillitis. The dermatosis is improved, with healing in the center of the plaques and less exudation; however, it is far from "cured." A few years ago a report appeared of treatment of nummular eczema with vitamin A given parenterally. Has this treatment proved successful? How is it done? Please give other suggestions as to the management of this case.*

M.D., Maryland.

Answer.—Nummular eczema is seen in children, but less often than in adults. In both, it is often resistant to treatment. Vitamin A therapy has been suggested by some, but its value in this condition seems limited. When vitamin A is used, parenteral therapy is usually not required. The danger of vitamin A intoxication should be remembered, especially in infants. In order to guard against this, there should be definite rest periods when vitamin A therapy is discontinued. From the morphologic description given, the diagnosis of infantile eczema should be considered.

BILIARY CIRRHOSIS AND COLITIS

To the Editor:—*A 28-year-old woman with massive ascites, abnormal liver function tests, and characteristic x-ray and proctoscopic findings of extensive ulcerative colitis involving all segments of the colon has been seen for the first time. There was 8,000 cc. of clear fluid removed from the abdomen for symptomatic relief. Have there been any recent experiences, in this uncommon situation, with respect to (1) efficacy of steroid therapy and (2) removal of the colon, presupposing that it is the site of the basic disorder and that the hepatic dysfunction is secondary?*

Robert C. Lawson, M.D., Oklahoma City.

Answer.—Biliary cirrhosis is not an uncommon late complication of long-standing ulcerative colitis. It would be of interest to know how long this patient has had the colitis, presupposing that the condition is of this type. In the absence of any evidence of malignant disease, however, this is the likely complication. Surgery at this stage is carried out with considerable risk, and it is not likely to revert the process in the liver. Steroid therapy has not proved to be of particular value in these cases.

CALCIUM AND ARTERIOSCLEROSIS

To the Editor:—*A patient with an ulcer says he has read that diets containing large amounts of milk predispose to arteriosclerosis. He blames this on the calcium content, not the fat content. Is there any substantiation to this?*

Robert M. Michels, M.D., Flushing, Mich.

Answer.—This consultant is unaware of any evidence implicating calcium in the development of arteriosclerosis. Some workers believe that an excessive consumption of animal fat, of which milk fat is one example, does have a causal relationship with atherosclerosis. However, this relationship has not yet been proved.

DIGITALIS AND NITROGLYCERIN IN MYOCARDIAL INFARCTION

To the Editor:—*Are digitalis and nitroglycerin indicated in treatment of acute myocardial infarction?*

Reynaldo E. Laureano, M.D., Baltimore.

Answer.—The use of nitroglycerin is not indicated in cases of known acute myocardial infarction. There is no reason to suppose that this drug will relieve the ischemia produced by an occluded vessel. In addition to this, nitroglycerin produces a fall in blood pressure which is not desirable in the shock state that may accompany myocardial infarction. Digitalis is not indicated for the treatment of acute myocardial infarction. If there is ventricular hyperirritability shown by frequent ectopic ventricular systoles, the use of digitalis is hazardous. However, if there is acute congestive heart failure associated with the infarction, digitalis should be used as in any case of congestive heart failure. Here digitalis is used in the treatment of the congestive failure, not in the treatment of the infarct. There is some evidence that digitalis may have an adverse effect on the coronary flow, but, in the presence of congestive failure, the hazard associated with the failure is greater than the hazard of a possible reduction in the coronary flow.

PRURITUS WITH CIRRHOSIS

To the Editor:—*A patient with hypertrophic (Hanot's) cirrhosis has a markedly elevated cholesterol level of 2,000 mg.%, an elevated bilirubin level of 10 mg.%, and a main complaint of severe pruritus. She has not responded to the usual therapeutic procedures and medication. Please advise treatment for both the primary disease and the pruritus.*

Roy T. Pearson, M.D., Spokane, Wash.

Answer.—There is no specific treatment for hypertrophic cirrhosis. It is desirable to maintain adequate nutrition, and it is important to provide extra amounts of the fat soluble vitamins, since these are poorly absorbed in this condition. Medical treatment of the pruritus is usually rather ineffective. Animal charcoal given orally three or four times a day is sometimes effective. Dihydroergotamine, given by injection, is sometimes helpful, but it is important not to use it too frequently because of possible toxic effects. Prolonged T-tube drainage of the common duct is sometimes necessary and usually relieves the itching.

BREAST FEEDING AND DEODORANTS

To the Editor:—*A mother who is breast feeding her infant has had great variations in milk supply. She believes that her use of a deodorant and antiperspirant has caused marked reduction in the available milk. Abstinence from the antiperspirant has apparently allowed an adequate flow of milk within 36 hours. Is there any available data on this subject?*

Mack J. Mosely Jr., M.D., Galveston, Texas.

Answer.—The quantity of breast milk that becomes available during the period of lactation is dependent, in the main, upon (1) the inherent ability of the lactating glands to secrete and (2) the ability of the infant (or pump) to completely empty each breast at least three times within 24 hours. It seems quite conceivable that during the application of deodorants and antiperspirants in the axillas, sufficient material reaches the breasts and nipples to provoke a distaste so that the infant does not empty the breasts, which then quite promptly secrete less. It seems very doubtful that the external and superficial application of such material exerts a direct antigalactagogue action.

FORMALDEHYDE HAZARD

To the Editor:—*In the Questions and Answers section of* The Journal *for Aug. 23, 1958, page 2157, a physician inquired about formaldehyde hazard resulting from the manufacturing of the new resinate wash-and-wear garments. I would add to the reply of the consultant that there has been considerable difficulty with irritation, presumably from the formaldehyde vapor, in retail establishments selling these garments. Such difficulty usually occurs only during warm weather, and as soon as cooler temperatures prevail there is no longer any difficulty. The problem that has shown up has been one primarily of irritation of the skin and nasal mucosa. Such a situation has recently been reported from the Baltimore Health Department. There is apparently some dispute about the exact reason for the plant closing in Phoenix, Ariz., to which the inquiring physician referred. There is perhaps some question as to whether the illness actually resulted from employees handling urea-formaldehyde resins.*

Mitchell R. Zavon, M.D.
University of Cincinnati College of Medicine
Cincinnati 19.

The above comment was referred to the consultant who answered the original question, and his reply follows.—Ed.

To the Editor:—*As earlier noted, when polymerization of urea-formaldehyde resin is complete no untoward effects are expectable. In the application of this resin together with the catalyst to textile material, complete polymerization is not always achieved. In some situations this occurrence may be accidental; in others it may be deliberate. In the formulation of this resin some excess of formaldehyde may be provided. One stated reason is that this excess masks the ammonia odor of urea or, to the same end, paralyzes the odor receptors within the nasal mucous membrane. The chemical form of the formaldehyde may be uncertain, but through absorption or adsorption of this gas or a compound thereof it is retained in or on the fibers. This may be influenced by the quantity of the catalyst applied. The group of workers most likely to be affected are garment workers from fabric earlier treated. Some difficulty may continue to the wholesale and retail trade. In department stores the elevated temperature of summer does not per se increase the exposure. Indirectly the situation derives from elevated temperature, in that department stores provide air conditioning with complete recirculation of air. This recirculation tends to build up the formaldehyde level. The commonest manifestation is eye inflammation from direct irritation. More serious situations, such as dermatitis or asthma, may be attributed to allergic response to formaldehyde sensitization.*

MAGNESIUM SULFATE DRESSINGS

To the Editor:—*In the Questions and Answers section of* The Journal, *May 3, 1958, page 145, there was a question concerning the use of magnesium sulfate dressings. The answer given concerned a discussion of osmosis—the action of hypertonic salt solutions in causing fluid to flow from areas of lesser to greater osmotic tension. This is all well and good; however, the most important aspect of osmosis, that is, the semipermiable membrane, was not mentioned. If it was meant to be implied that the unbroken epithelium acts as a semipermiable membrane, then this is a new concept to me. As an ophthalmologist I make frequent use of hot soaks to the eyelids; however, I have always felt that the heat with its vasodilating properties was the only beneficial aspect of this type of therapy.*

Capt. T. J. Tredici, Scott Air Force Base, Ill.

The above comment was referred to the consultant who answered the original query, and his reply follows.—Ed.

To the Editor:—*The fact that heat causes superficial vasodilatation in no way proves augmentation of blood flow in the underlying inflamed area. Recent studies (Lewis,* J. Physiol. 140:285, *1958) correlate the reversal of inflammation with the formation, within the inflamed area, of pharmacodynamically active polypeptides with vasodilating and permeability altering properties. The peri-inflammatory fibrinous membrane is highly effective in preventing the entry of blood, antibodies, prescribed antibiotics, etc., (Dubos, Biochemical Determinants of Microbial Diseases, Cambridge, Mass., Harvard University Press, 1954) into the target zone. Even if heat did get by the fibrin barrier, how could it eliminate such mechanical barriers to small vessel blood flow as interstitial edema and the vascular and lymph compressive effects of dense inflammatory exudation?*

The key factor in reversing inflammation, in the opinion of this consultant, is a change in the permeability or, more properly, the impermeability of acutely injured tissue. This constitutes the basic rationale for the anti-inflammatory effects of systemically administered proteolytic enzymes (Innerfield, Ann. New York Acad. Sc. 68:167, *1957) and, indeed, the application of soaks or wet dressings.*

Continuous wet applications have a macerative effect on the skin, thereby injuring and altering the permeability of the interepithelial cement matrices. Actual penetration and seepage of applied fluid to the inflamed zone is the basic aim of soaks. When successful, increased permeability of the inflammatory membrane occurs and drainage ensues. The justification for making the solution hot would be the factor of increasing blood flow after modification of tissue impermeability had been achieved.

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Civil Air Surgeon Post Set Up . .
HEW Official Cites Aged Health Needs . .
Emergency Medical Stops by Planes . .
Medicare Defines Residing with Sponsor . .
Miscellany . .

POST OF CIVIL AIR SURGEON PROPOSED

Federal Aviation Administrator E. R. Quesada has proposed the position of Civil Air Surgeon in the new Federal Aviation Agency. The action thus promises new status for civil aviation medicine considerably beyond that in the old Civil Aeronautics Administration and in accord with recommendations of the American Medical Association.

The air surgeon will be directly responsible to the FAA administrator. His major function, as spelled out by Mr. Quesada, will be to direct the civil aviation medical program and work toward the improvement of safety in air commerce "through the development and application of sound medical knowledge and research in civil aviation." In a summary of the position, the administrator stated:

"Health and medical problems pervade a large segment of FAA's organization. Research and development activities and the design and installation of facilities involve psychological and human engineering considerations.

"The number of applicants for pilot's, flight engineer's, and other airmen's certificates who must be examined and reexamined exceeds 250,000 annually. Medical research or study is required with respect to the physical and mental stress, and fatigue and the over-all working environment of aviation personnel including air traffic controllers who are directly responsible for the safety of people and equipment in flight."

Among the responsibilities of the Civil Air Surgeon would be:

1. Establish minimum standards of mental and physical fitness for flight personnel, air traffic controllers, and such other personnel deemed necessary for flight safety.
2. Provide medical examinations of such personnel by approved medical examiners.
3. Provide inspection and appraisal of examiner facilities and procedures to insure proper assessment of physical fitness and enforcement of regulations.
4. Promote training activities to improve the proficiency of medical examiners.
5. Establish requirements for and encourage research in the field of aviation medicine.
6. Develop and conduct internal health and medical programs for FAA personnel.

FAA listed these qualifications for the post, which will pay between $17,500 and $19,500: no specific age category but physical and mental agility and vigor, a medical degree and license to practice, plus certification by the American Board of Preventive Medicine in aviation medicine or certification in a related speciality with suitable experience in aviation medicine.

Progressively responsible experience in the administration of medical programs will be required.

HEW OFFICIAL WARNS ON AGED HEALTH CARE

A Department of Health, Education, and Welfare official says the cost of health care for the aged has become "a political problem of great moment" and it "will not go away." Assistant Secretary Elliot Richardson, addressing the American Public Health Association, declared:

"The real issues center around the degree of public action thereby demanded. The federal government is already contributing to the provision of medical care for old-age assistance recipients, and is deeply involved in helping provide adequate facilities for the care of the chronically ill."

Mr. Richardson pointed out that, despite recent progress by private and voluntary institutions in helping the aged to meet the costs of health care, the "remaining gaps are serious and difficult to close," and the activities of local jurisdiction in working out solutions are "spotty, sporadic, and, for the most part, inadequate."

Too few communities, he said, have adequate facilities for long-term care of the chronically ill and dependent elderly persons, and very few places pay full costs for the hospital care of the indigent, many of whom are aged. "Unless private, voluntary, or local solutions to these and similar problems are found, the pressure for action at higher levels of government will continue to mount."

There are now 15 million persons over 65 in the U. S. and in a very few years there will be 20 million, Mr. Richardson predicted. "Every available medical, nursing, and custodial resource is taxed to the utmost to care for the health needs of our aged population, and still we are not doing enough or doing it as well as we know how. Still more severely affected are the families called upon to meet the medical expenses of an aged relative. The prolonged and expensive illness of a grandparent may even in some instances have a restrictive impact on the education of his grandchildren."

CAB PROPOSES EMERGENCY MEDICAL STOPS

The Civil Aeronautics Board is prepared to change commercial flight regulations to permit planes to make unscheduled stops in order to provide transportation for persons in need of emergency medical treatment. CAB has issued a proposed rule change and given all persons interested in commenting until Nov. 26 to file communications.

Under present regulations, CAB has prohibited certain air carriers from engaging in local air transportation between certain points on their routes. The policy has been known as a "closed door" restriction and has been done solely because of the economics of air transportation industry and the system of regulations set up under the Civil Aeronautics Act.

The board recently was advised of a case in which an airline operating under the closed door policy was prevented from providing air transportation to a person in need of emergency medical treatment. Comments the CAB in its notice of proposed rule change:

"Under such circumstances, a closed door restriction operates contrary to the public interest and, if requested, would undoubtedly warrant the board's granting relief from such restrictions in each individual case. It is evident, however, that this procedure would frequently not be feasible.

"Recognizing that requests for such emergency transportation would be made infrequently and that competitive considerations would, thus, be negligible, it is the board's view that to require the air carriers to secure a modification of their certificates under such circumstances would be an undue burden on such air carriers by reason of the limited extent of, and unusual circumstances affecting, their operations and would not be in the public interest."

MEDICARE EXPLAINS 'RESIDING WITH SPONSOR' STATUS OF DEPENDENTS

In response to inquiries, the Office for Dependents' Medical Care has explained the eligibility status of dependents who reside apart from sponsors at the time medical care commences but rejoin the sponsor before completion of treatment. "As a general rule," ODMC says, "such care may be continued (from civilian sources) without a Medicare permit."

ODMC then goes into detail, explaining that readmission to a hospital is authorized within 14 days after discharge without a permit. However, in a maternity case, the wife rejoining her spouse during treatment is not eligible for continued civilian care (without a permit) if she changes her physician for any reason other than death or illness of the physician.

NATIONAL AIR POLUTION CONFERENCE

Officials of the Department of Health, Education, and Welfare, announcing plans for the National Conference on Air Pollution, say they hope the November meeting will result in a unified 10-year plan of action in research and control activities. The conference will be held in Washington November 18-20.

"As with other resources once taken for granted, we are discovering that our usable air supply is not limitless and cannot be abused with impunity," a statement from HEW declares. "Until recently, the principal target for control has been visible pollution such as smoke and soot produced by burning solid fuels. Nowadays, smoke is only one of a number of contaminants."

HEW explains that exploration of the short and long-range effects of polluted air on our health is still in its early stages. "We know, however, that man-made pollution combined with natural fog caused 20 deaths in Donora, Pa., in 1948 and several thousand deaths in London in 1952 and 1956. And we have no guaranty against similiar disasters elsewhere."

The annual air pollution cost for the country has been estimated at between 1.5 and 4 billion dollars, exclusive of effects on health which cannot yet be accurately measured and the many intangibles which result from living and working in an unpleasant environment."

MISCELLANY

Dr. Aims McGuinness, special assistant to the Secretary of Health, Education, and Welfare, addressing the American College of Preventive Medicine warned that "unless there is a substantial increase in the production of physicians and other professional health personnel, not only the total research effort but the health services of the nation will be severely hampered in the years ahead."

A number of physicians are scheduled to speak at the National Conference on Air Pollution called by the Public Health Service for Nov. 18-20. Dr. Oscar A. Sander of Milwaukee represented the American Medical Association on the planning committee. Surgeon General Burney will present a status report to the nation on progress in the five-year program of research and technical assistance to the states in air pollution. HEW Secretary Flemming will address the conference on "What of the Future?"

Researchers and clinicians met in Washington to lay the groundwork for new research on the effects of tranquilizers and other drugs on children, both normal and those emotionally disturbed or mentally retarded. The conference was called by Psychopharmacology Service Center of the National Institute of Mental Health.

OCDM has published a revised edition of the family handbook, "What to Do Now About Emergency Sanitation at Home." The 22-page publication is available at the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 15 cents a copy.

A 20-page pamphlet on the 1960 White House Conference on Children and Youth has been prepared as a guide to organizations concerned with conference preparations. Those interested may write the conference headquarters, 330 Independence Ave. S. W., Washington 25, D. C.

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DIAGNOSIS OF PERIPHERAL ARTERIAL EMBOLI OF THE EXTREMITIES

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and
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The clinical features of an acute peripheral arterial embolus are considered to be a rigidly fixed series of events, namely, sudden, abrupt, excruciating pain followed by numbness, pallor of the extremity, and absent pulsations. However this sequence of events may be the exception rather than the rule, inasmuch as the onset of pain may be insidious and, in some instances, preceded by paresthesias of the involved extremity. In many instances the diagnosis of a peripheral arterial embolus depends on the assessment of minor signs and symptoms. Next to pain, the vascular disturbances manifested by absent arterial pulsations and color and temperature changes in the involved extremity are prominent features of an acute arterial occlusion. The frequent association of cardiac abnormalities with peripheral arterial embolus should be well known. In addition there is a prevalence of emboli involving the femoral artery.

RECENT observations by a number of authors have shown that early diagnosis of a peripheral arterial embolus, followed by its surgical removal with restoration of blood flow whenever possible, will, in most instances, be superior to conservative measures in terms of patient mortality and morbidity.[1] Furthermore, accumulative clinical data have suggested that surgical treatment is most effective when employed within the first 24 hours after lodgment of the embolus. However, in most reported series,[1] a large percentage of the patients have presented signs and symptoms for at least 24 hours or longer before surgical attention was considered; in this regard, our series is no exception. In evaluating this problem, we found a certain number of patients who had disease conditions that were considered at the time to be contraindications to surgical removal of the embolus. Still, in a number of cases the atypical clinical course suggested to the attending physician a condition other than an acute arterial occlusion. Hence, surgical intervention was delayed, and, in most instances, the patient presented ischemic changes of an irreversible nature at the time of surgical evaluation.

Because of this problem, this report concerns a clinical review of patients seen with peripheral arterial emboli of the extremities at the University Hospitals, with particular attention given to the signs and symptoms of this condition and emphasis on early diagnostic criteria.

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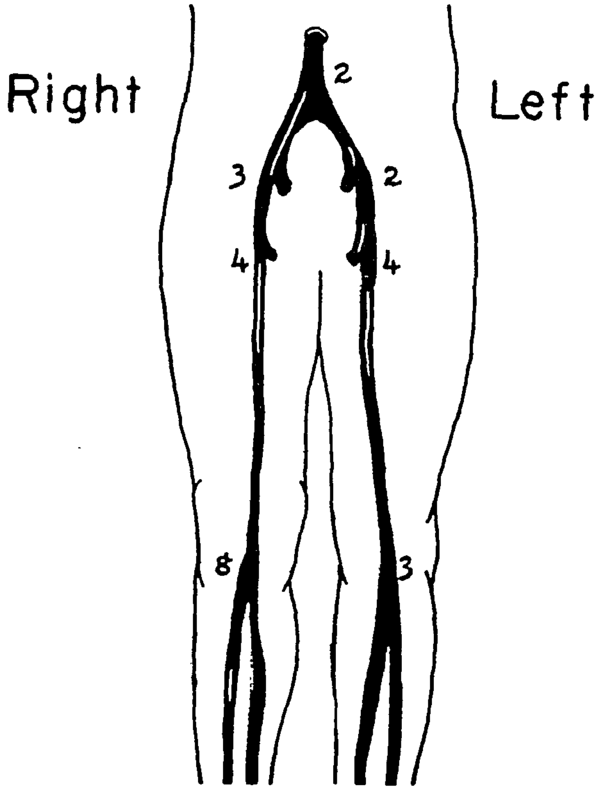
From June, 1951, to January, 1957, inclusive, the diagnosis of peripheral arterial emboli involving the upper and lower extremities was made in 30 patients. Data gleaned from a critical review of the clinical records of these patients constitute the basis of this report.

The youngest patient in our series was 39 years of age, while the oldest was 79. The average age of the patients in this group was 62.

Etiology

In most collected series of this nature[2] cardiac conditions manifested by auricular fibrillation, mitral valvular disease, and recent myocardial infarction have been found primarily responsible for the etiology of the embolus. Our findings were quite similar, and to present them in detail would only be a repetition of a known fact. However, in five instances chronic congestive heart failure was the only cardiac finding, a point that has been afforded little emphasis with respect to the etiology of a peripheral arterial embolus. Unmistakable clinical evidence of cardiovascular disease was present in 29 of the 30 patients. Particular diagnoses included auricular fibrillation, 19; congestive heart failure, 5; mitral valvular disease, 3; and myocardial infarction, 2. In only one case was the acute arterial occlusion considered to be a primary thrombosis.



Sites of lodgment of emboli in 26 patients with acute peripheral arterial occlusion (in four instances upper extremity was involved).

Location and Symptoms

Location.—The sites of lodgment of the emboli, as determined by physical examination, surgical arterectomy, and autopsy examinations, are shown in the figure. The prevalence of emboli involving the femoral artery is to be noted.

Symptoms.—Pain heralded the onset of a peripheral arterial embolus in 24 of the 30 cases. In five instances the embolic event was manifested initially by paresthesias of the extremity, while one patient experienced a weakness of the involved limb as the initial symptom.

Twenty-four of the 30 patients presented a combination of two or more of these subjective symptoms, namely, pain, followed by paresthesia (numbness, coldness, tingling, and heaviness), and/or paralysis.

The 24 patients whose initial symptom was pain described this sensation under a variety of terms which ranged from excruciating pain to simply a mild ache. In 18 instances the pain was abrupt and sudden and was frequently described as severe or excruciating in character. Although our records are incomplete, it was suggested that such pain manifested itself in one or two ways: either it was localized initially to specific regions of the extremity, namely, foot, hand, calf, popliteal space, or groin, or, less frequently, it involved the entire limb. Furthermore, its duration was variable, for, in some cases, it persisted for three to four hours and in one case less than one hour, only to be replaced by a numb distressful feeling to the limb. Still others noted the pain to be continuous and to involve the entire limb during the first 24 hours. It was also our impression that in some cases the character of the acute pain gradually subsided, only to be replaced by an ischemic, neuropathic type of pain.

As previously stated, six patients noted the onset of pain to be insidious in nature and most frequently described it as an aching sensation. In one case the entire limb was involved, while the remaining five patients indicated the site to be either the foot or the region below the knee. Four patients noted the pain to increase in intensity and severity during the first 24 hours; the other two patients noted little increase in its intensity except when the limb was exercised. It was of interest that each of these six patients complained of coldness of the involved extremity.

Paresthesia.—Eighteen patients in this series experienced some type of paresthesia. In 10 cases it was described as numbness and in 7 as coldness of the extremity; these two subjective sensory complaints were present in combination in nine instances. In addition, tingling, burning, and heaviness of the involved limb were noted by three patients. As previously stated, in five patients the above sensory disturbances were the initial complaint referable to a peripheral arterial embolus. In three instances pain followed and was mild in two patients and severe in another, and, in each case, it persisted for at least 24 hours; in two patients, the pain was not felt until the limb was exercised and intermittent claudication was noted.

Motor Findings.—In six instances, paralysis of the involved extremity or a specific group of muscles was observed. In five cases the motor changes followed other subjective symptoms; however, in one case its presence was the first evidence of an acute arterial occlusion. The onset of muscular paralysis was variable, and in one patient it was apparent within 10 minutes after the embolic episode. In one case the entire extremity was completely paralyzed, while in the remaining five patients only the foot and toes were involved. In no instance were the motor findings transient, but once they made their appearance they became permanent unless the ischemia was relieved.

As many of our patients were seen hours or days after their embolic event, signs of advanced ischemia were unmistakably evident. However, in seven instances the interval between onset and hospital admission was less than six hours, and in four the acute arterial embolus occurred during the patient's hospitalization for some other condition. From this group, certain definite observations were available. First, in four patients, pallor of the extremity was the initial color change and, in time, (the earliest within 30 minutes, the longest 24 hours) cyanosis was recorded in the initial color change. In four instances the color change was manifested by a visible line of demarcation at the knee level. In three patients the foot and ankle presented this phenomenon.

Second, a temperature difference was distinguished in each patient, which corresponded with the color change. In three patients this difference was more diffuse and extended beyond the color line.

Comment

The clinical features of an acute peripheral arterial embolus are considered to be a rigidly fixed series of events, namely, sudden, abrupt, excruciating pain followed by numbness, pallor of the extremity, and absent pulsations. However, as indicated by the data presented here, this sequence of events may be the exception rather than the rule, inasmuch as the onset of pain may be insidious and, in some instances, preceded by paresthesias of the involved extremity. Moreover, in one of our patients, motor weakness of a specific group of muscles was the first indication that an acute peripheral arterial embolus had taken place. These observations are not original, as a number of authors have recorded similar findings; however, their importance as diagnostic criteria of an arterial embolus has not received due emphasis.

For example, Allen and his associates,[3] at the Mayo Clinic, reported that only 48% of patients in their series experienced an abrupt onset of symptoms. This figure corresponds closely to that given by Haimovici,[2] who found sudden pain to be the *principal clinical feature in only 60% of the patients* in his series of 330 cases of embolism, and by Richards,[4] who found that 11 of his 48 patients experienced symptoms other than acute pain. Our own experience is quite similar, for of the 30 cases of peripheral arterial emboli the onset of symptoms was abrupt in 18. In five patients numbness of the extremity replaced pain as the dominant symptom, and in six pain was the first symptom; however, its character was not the intense, sudden, agonizing pain one frequently associates with this condition. This factor accounted for delayed diagnosis in the great bulk of these cases seen in this series.

This atypical clinical symptomatology in some cases of peripheral arterial emboli is difficult to explain, since analysis of our cases indicates this feature was not related to age or location of the embolus. Richards [4] has discussed this problem quite succinctly in a recent paper and relates that Lewis, in 1936, considered the pain of an acute arterial occlusion to be directly related to the degree of muscle ischemia. However, the variance of this one symptom has suggested to Richards that muscle ischemia is not the sole underlying mechanism. He believes that dilation of the artery by the embolus may be an additional and principal factor in explaining the sudden onset of pain and its localization to a specific part of the extremity. Furthermore, he indicates that this dilating component may be absent and the artery lumen only partially occluded in those cases where the pain is slowly progressive or is preceded by paresthesias of one type or another. Still others tend to link the appearance of acute pain with arterial spasm, a factor Richards believes has received more emphasis than it rightly deserves in the etiology of pain in an acute arterial occlusion.

Next to pain, the vascular disturbances manifested by absent arterial pulsations and color and temperature changes in the involved extremity are prominent features of an acute arterial occlusion. In our series, we found pallor of the extremity to be an early event and this was followed by cyanosis of the involved limb. In addition, the finding of absent, or diminished, arterial pulsation was, in each instance, accompanied by color and temperature change.

The frequent association of cardiac abnormalities with peripheral arterial embolus is a well-known fact, and in our series such was the finding in 29 of the 30 patients. Hence, the presence of auricular fibrillation, mitral valvular disease, recent myocardial infarction, and congestive heart failure are so closely allied with this condition that their presence alone in patients who present atypical motor and sensory disturbances to one or more extremities should suggest the presumptive diagnosis of an arterial embolus until proved otherwise.

Summary

In one-third of 30 cases of acute peripheral arterial occlusion, the onset of symptoms, principally pain, was insidious and, in some instances, paresthesias preceded the latter as the chief symptom. In the remaining cases the abrupt onset of pain was characteristic; however, its duration and behavior were uncertain. These findings suggest that in many instances the diagnosis of a peripheral arterial embolus will depend on the assessment of minor signs and symptoms, a concept that is in contrast to the usual expectation of an acute artery occlusion, namely, a sudden, painful, dramatic event.

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PREVENTION OF URINARY CALCULI AFTER PARALYTIC POLIOMYELITIS

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Urinary calculi after poliomyelitis are largely confined to long-term respirator patients. Prophylaxis of calculi can be effective if begun early in the paralyzing and immobilizing diseases. Proper positioning is required to prevent stasis of crystalline material in the genitourinary tract. Calcium intake of 500 to 700 mg. daily was achieved by limiting milk and milk products to the equivalent of one and one-half glasses. Having patients produce 1,500 to 2,000 ml. of urine daily is the hardest task in the prophylactic program. Placing fluid reservoirs, connected to self-service drinking tubes, next to each patient aided in attaining a high fluid intake. The medical problem of renal stones was discussed frequently in lay language with the patients as a group. Once the problem was understood by some of the patients, one or more usually prompted the rest to work toward the required fluid volumes. A program of prophylaxis of urinary calculi appears to be widely applicable.

Prophylaxis of urinary lithiasis is an important part of the management of patients with paralytic neurological diseases. The development of urinary calculi may otherwise produce as much disability, or more, than that caused by the paralysis itself.[1] Several analyses indicate that patients severely paralyzed by poliomyelitis frequently develop calcium phosphate urinary calculi. Calculi were found in 33 (33.7%) of 98 long-term and in 1 of 32 short-term respirator patients by Taylor, Alcock, and Hildes.[2] No stones were present in 112 nonrespirator patients with spinal paralysis. Slotkin, Loeser, and Ament [3] reported renal stones in 19 (40.4%) of 47 consecutive respiratory patients. Rodgers, Ellwood, and Ratelle [4] noted that 22 (33%) of 66 adult respirator patients and 8 (31.6%) of 25 children in respirators developed stones. Calculi were found only twice in nonrespirator patients with spinal paralysis. Affeldt [5] detected renal calculi in 14.9% of 675 convalescent patients at the Rancho Los Amigos Respiratory Center. The incidence rose to 23% in the 338 patients over 20 years of age.

Pathogenesis

Hypercalciuria and Hyperphosphaturia.—Skeletal demineralization with hypercalciuria and hyperphosphaturia almost invariably follows paralytic poliomyelitis.[6] Hypercalciuria, in the immediate weeks after the onset of poliomyelitis, tends to be intense in both mildly and severely paralyzed patients. Subsequently, the duration of hypercalciuria is proportional to the degree of paralysis, and an increased urinary calcium content may continue for 6 to 12 months or more in patients with paraplegia or quadriplegia.[6b] Artificial mobilizing procedures have little effect on the intensity or duration of the calcium losses.[7]

Well-controlled studies on the effects of dietary calcium on urinary calcium excretion are limited. Howard, Parson, and Bigham [8] noted only inconse-

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Read before the Section on Nervous and Mental Diseases at the 107th Annual Meeting of the American Medical Association, San Francisco, June 27, 1958.

quential changes in the urinary calcium of patients with fractures after large shifts in dietary calcium. However, Dunning and I[7] observed a rise in the serum calcium from 11.8 to 13.1 mg. per 100 cc. within two weeks in a boy with paraplegia due to poliomyelitis when the daily calcium intake was raised from 0.5 Gm. to 1.5 Gm.

Reduced Urine Flow.—Hypercalciuria and hyperphosphaturia increase the amount of urinary solutes. Diminished fluid intake due to a combination of anorexia and increased insensible water losses may decrease the renal clearance of water at the same time. A further rise in urinary solute concentration results.

Urinary Tract Infection.—Many poliomyelitis patients require catheterization to drain transiently paralyzed bladders. Few escape infection with urea-splitting bacteria after this procedure; an alkaline urine results, in which calcium phosphate can exceed its solubility constant and precipitate as apatite and struvite.[9] Infection also creates both denuded areas of urinary tract mucous membrane and exudates of organic material which may provide the matrix for stone formation.[10] It has been noted previously that stones that appear after poliomyelitis are apt to be restricted to patients with urinary tract infection.[11]

Stasis.—The posterior renal calyces fail to drain by gravity except when the patient is in the prone or erect position.[12] Hence, in recumbent immobilization any material which precipitates in the urine tends to drift into and remain stagnant in the dependent calyces. The combination of an increased calcium phosphate excretion, decreased urinary flow, a urine pH favoring precipitation of crystalline material, a readily available organic detritus for matrix formation, and stagnant regions from which drainage is limited creates a formidable risk of calculi. Other factors, such as the respiratory alkalosis which results from chronic respirator treatment,[13] may contribute to this risk.

Prophylaxis

Clinical Material.—This study was initiated at the New York Hospital in 1949 and continued from 1953 until the present at the Northwest Respirator and Rehabilitation Center of the University of Washington, Seattle. Of the 500 or more patients with poliomyelitis admitted to the two institutions, there were 115 with extensive paralysis who were under direct observation for periods lasting six months or more. Forty-one were at the New York Hospital and the remainder were treated in Seattle.

Twenty-five patients had severe paralysis of the trunk and extremities (total paraplegia, triplegia, or quadriplegia) without requiring respirator care. Twenty extensively paralyzed subjects required short-term (six weeks or less) treatment in the respirator, and 69 other extensively paralyzed patients required long-term (more than six weeks) respirator treatment. Among the respirator patients, 55 were under our supervision during both the acute and convalescent stages of poliomyelitis. Measures designed to prevent the development of urinary calculi were carried out in these 55 patients throughout their entire illness. This will be referred to as the "early treated" group. Thirty-four respirator patients were transferred to us from other hospitals for rehabilitation care at intervals ranging from two months to three years after the onset of poliomyelitis. These patients had not previously been on a program particularly designed to prevent renal calculi and were designated the "late treated" group.

Treatment Program.—Patients on this service were maintained on a low calcium intake, between 500 and 700 mg. daily. Fluids were forced to produce a measured urinary output of 1,500 to 2,000 ml. of urine per day. Urinary tract infections were treated promptly. All patients, including those in respirators, were turned from side to side several times daily and placed prone as early in convalescence as possible. Rarely was prone positioning delayed longer than four weeks after the onset of treatment. Seven respirator patients, three in the early treated group and four in the late treated group, received norethandrolone (Nilevar) during a metabolic study of this agent.[14] No specific metabolic measures were employed to influence the solute excretion in the other patients. Each patient underwent a general program of convalescent care and rehabilitation and was mobilized as rapidly as his disability permitted.

Detection of Calculi.—Several methods were used to detect urinary calculi. Every patient was under direct clinical surveillance in the hospital for an average of six months during rehabilitation therapy. Periodic x-rays of the abdomen to show calcification in the kidneys, ureters, and bladder were taken on each patient, particularly prior to discharge from the hospital. In addition, all of the patients studied at the Northwest Respirator Center had intravenous pyelograms. Clinical follow-up by questionnaire to determine the incidence of late urinary complications was accomplished in 1954 on 33 of the 41 New York Hospital patients. Either direct clinical and x-ray follow-up or a follow-up through the current attending physician has been achieved for an average of three years to date on all of the Northwest Respirator Center patients.

Incidence of Urinary Calculi.—The table summarizes the extent of paralysis and incidence of calculi. Urinary lithiasis was detected in respirator-treated patients only, and renal calculi were limited to those patients who had been in respirators for more than six weeks. The figure diagrams the relationship between calculi and the age and sex of the respirator-treated patients.

Three early treated respirator patients developed calculi, an incidence of 5.5%. One boy had a large right renal calculus necessitating surgical removal of both stone and kidney at another hospital two years after the onset of poliomyelitis. One young woman first showed tiny calcifications in the region of the right renal pelvis two years after the onset of poliomyelitis. The early care of both these patients had been hampered by great difficulties in changing them from the recumbent position. Their treatment had not otherwise differed from the rest of the early treated group. The third early treated patient with urinary lithiasis developed several small bladder calculi after eight months of indwelling catheterization. She had lumbosacral sensory loss and bladder paralysis associated with acute poliomyelitis.[15] After removal of the bladder calculi by transurethral crushing and a partial resection of the internal urethral sphincter, she has had no other urinary problems for two ensuing years.

Extent of Paralysis and Incidence of Calculi Among 115 Patients

	Patients, No.	With Calculi, No.
Severe spinal paralysis only	25	0
Short-term respirator		
treated early	14	1
treated late	6	0
Long-term respirator		
treated early	41	2
treated late	28	9
Total, early treated respirator cases	55	3(5.5%)
Total, late treated respirator cases	34	9(26.5%)

Nine (26.5%) of the 34 late treated respirator patients developed calculi, eight in the kidneys and one in the bladder. Large stones in the renal calyces and pelves were present in five late treated patients. These calculi were successfully removed surgically in three patients while symptoms were controlled by conservative treatment in the other two who were precarious surgical risks. The calculi in three late treated patients were asymptomatic and detected only as small radiopaque densities in the region of the renal calyces. One late treated patient showed several small bladder calculi which necessitated transurethral removal. He had had an indwelling catheter for six weeks during his acute illness and early convalescence.

All 12 patients with established calculous disease had been catheterized during acute poliomyelitis and all had persistent bacilluria with organisms of the coli-aerogenes group. Catheterization had also been performed during acute illness in most of the other respirator patients; the majority had bacilluria with gram-negative organisms at some time during convalescence.

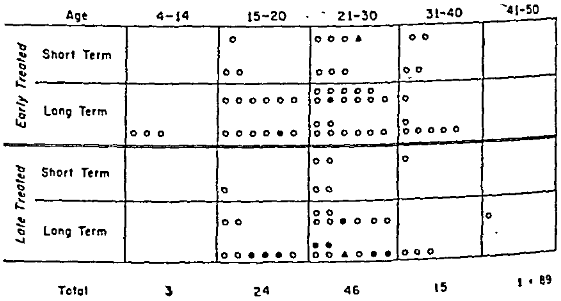
The care of the late treated patients during the first few weeks or months after poliomyelitis differed in several respects from the prophylactic program established for the 55 patients treated from onset of poliomyelitis. Reference to the clinical notes and interviews with the patients indicated that a minority of the late treated patients had been on a restricted calcium intake. Several, including one young woman who showed diffuse renal calcinosis within eight weeks after the onset of poliomyelitis, had had generous milk shake and ice cream supplements. No emphasis had been placed on a high urine output. Few of the late treated patients had been changed from the recumbent position either during their acute illness or in early convalescence and several had been supine for months. However, most of the late treated patients had received appropriate antibiotics for urinary tract infections.

Comment

This study confirms the fact that urinary calculi after poliomyelitis are largely confined to long-term respirator patients.[2] Two of 55 early treated respirator patients and 8 of 34 late treated respirator patients had renal calculi. This contrast in renal stone incidence was striking and indicates that prophylaxis of calculi can be effective if begun early in the paralyzing and immobilizing diseases.

The excellent cooperation of nurses and dietitians made the prophylactic treatment program possible. A calcium intake of 500 to 700 mg. daily was achieved by limiting milk and milk products to the equivalent of one and one-half glasses. Milk products were reduced further when large amounts of fruit juices were taken, since the latter contained approximately 8 mg. of calcium per 100 cc. Extra milk shakes, ice cream, cheese, and milk-base eggnogs were foregone until the expected duration of postparalytic hypercalciuria had passed. This was never less than six months after onset of poliomyelitis.

Having patients produce 1,500 to 2,000 ml. of urine daily was the hardest task in the prophylactic program. Orders to "force fluids" were no guarantee that dilute urines would result, so output measurements were checked frequently. The patients had large insensible water losses, particularly in warm weather, and moderate anorexia often impeded thirst. The extensive paralysis suffered by these patients meant that an attendant was ordinarily required to administer fluids and to empty urinals. Both the patients and the attendants found this irksome. (An example may illustrate some of the difficulties: If a patient takes half a glass of liquid



Incidence of calculi among short-term and long-term respirator patients according to age and sex of patient. Filled triangle=bladder calculus, filled circle=renal calculus, and open circle=no calculi.

Top line in each square indicates women, bottom lines, men.

at each feeding and requires a 3,800 ml. intake to maintain an 1,800 ml. output, 38 separate daily trips by nursing staff are required for fluid intake alone.)

The problems in attaining a high fluid intake were met in several ways. Much of the nursing time required was eliminated by placing fluid reservoirs, connected to self-service drinking tubes, next to each patient. These reservoirs were attached to respirators when necessary. The medical problem of renal stones was discussed frequently in lay language with the patients as a group. Once the problem was understood by some of the patients, one or more usually prompted the rest to work toward the required fluid volumes. The fluid intake was supplemented by intravenous infusions if persistent anorexia or nausea prohibited adequate gastrointestinal ingestion. It was rarely necessary to resort to parenteral routes except during intercurrent infections.

Another purpose behind forcing fluids was to minimize the severity of urinary tract infections. Patients with positive urine cultures were treated for limited periods by specific antibiosis after in vitro sensitivity testing. These measures usually controlled the clinical manifestations of infection, but persistent bacilluria was frequent. Prophylactic or prolonged antibiosis was not employed. Infections with drug-resistant organisms were treated by an increased fluid intake. Efforts to change the urine pH by drugs or diet were met with only limited success.

After the third month of convalescence, those patients with calculi had frequent urinary tract infections. Acute urinary tract infections after the sixth month of convalescence were reported on follow-up examination by only four patients, who had no demonstrable calculi. In contrast, 8 of the 12 patients with calculi gave histories of either periodic dysuria, flank pain, or acute episodes of pyelocystitis occurring repeatedly in convalescence.

Proper positioning to prevent stasis of crystalline material in the genitourinary tract required considerable efforts by nurses, particularly for patients in respirators. Nonrespirator patients were turned to the prone position at least once daily throughout both acute and convalescent illness. The patients in body respirators were transferred to rocking beds early in convalescence and most could be placed prone shortly afterwards. Passive standing on a tilt table was also employed for many patients to induce gravitational drainage of the kidneys.

Some late treated patients who had remained supine for several months after the onset of poliomyelitis had untoward reactions when changed from the recumbent position. When first placed prone, they passed macroscopic urinary concretions of calcium phosphate salts, producing both pain and hematuria. These complications were minimized by inducing a high urine output for several days before starting prone positioning.

The present study reaffirms the importance of interrupting recumbency to prevent urinary calculi in paralyzed and immobilized patients. There was no way of telling how much protection was added by the other treatment measures. Both of the early treated patients who developed calculi suffered from unusually severe immobilization in the supine position during the first part of their illness. Henceforth, such severely immobilized patients will be treated with testosterone-estrogen combinations or with norethandrolone. These hormones ameliorate hypercalciuria [16] and their addition to the regimen may add some protection for patients in whom recumbency is unavoidably prolonged. However, the low incidence of stones among early treated patients whose position in bed could be changed indicates that special hormones or drugs [17] are unnecessary to protect the majority of appropriately treated paralyzed patients. Other paralyzing and immobilizing diseases produce metabolic changes similar to those which follow poliomyelitis.[18] Therefore, this program of prophylaxis of urinary calculi appears to be widely applicable.

Summary

The incidence of urinary calculi was determined in 115 patients severely paralyzed and immobilized by poliomyelitis. Calculi developed only in respirator patients and were rare unless respirator treatment had been continued for six weeks or more.

A program of prophylaxis of urinary lithiasis was employed which included limiting the calcium intake, insuring a large urine output, promptly and briefly treating urinary tract infections, and minimizing urinary stasis by not allowing patients to remain in the recumbent position for long periods. These measures were initiated within the first month of illness on 55 respirator patients, 3 (5.5%) of whom subsequently developed urinary stones. Initiation of the prophylactic measures was delayed for two months to three years after poliomyelitis in 34 other respirator patients. Nine (26.5%) of this latter group developed calculi.

The effectiveness and simplicity of this regimen for protection against urinary calculi gives it wide applicability in the treatment of patients suffering from paralyzing and immobilizing diseases.

This study was aided by an annual grant from the National Foundation for Infantile Paralysis to the Northwest Respirator and Rehabilitation Center and a grant from the National Institute of Neurological Diseases and Blindness, U. S. Public Health Service.

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Ernest W. Johnson, M.D., Columbus, Ohio

The diagnosis of suspected muscle weakness in infants up to the age of five years is difficult unless one uses a systematic approach. The steps in the examination are (1) palpation of the muscles, (2) examination for muscle tightness, and (3) demonstration of muscle function. Palpation not only reveals tenderness but also distinguishes among conditions that affect the consistency of the muscle mass. Tightness may be seen in either the affected muscles or their antagonists during passive movements. To observe the function of individual muscles calls for much special maneuvering and close observation. Even after the child supposes the examination to be over, the movements of its arms during the act of dressing afford indications as to the status of the deltoid and other muscles of the upper extremity. Electrodiagnostic methods can prove helpful. These methods of differential diagnosis are essential to proper treatment, since they may decide, as in the case history here cited, between such conditions as poliomyelitis and polymyositis.

Frequently the practicing physician is faced with the difficult problem of examining an infant or small child with suspected muscular weakness. The experience can be less frustrating if one uses a systematic approach to the examination. A review of the current pediatric-neurological literature demonstrates the need to present a relatively simple routine for such an examination. No claims for originality are made for any of the techniques outlined; however, these methods were all developed during two years of observation of, and experience with, the diagnosis and management of muscle weakness problems in a pediatric setting.

Emphasis of this paper will be on detecting muscle weakness in those conditions affecting the motor unit, that is, the lower motor neuron and all the muscle fibers which it innervates. Poliomyelitis has been one of the common clinical conditions affecting the motor unit in children. Others include brachial plexus and nerve injuries at birth, infectious polyneuritis, progressive spinal atrophy of infancy, amyotonia congenita, muscular dystrophy, polymyositis, and postnatal nerve injuries of various

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The techniques which are used represent attempts to determine whether motor weakness can be detected in specific muscle groups. When the presence and distribution of muscle weakness is determined, then additional diagnostic procedures can be undertaken.

The steps in the examination are as follows: (1) palpation of the muscle bellies; (2) examination for muscle tightness; and (3) demonstration of muscle function (with separate consideration for the infant and the walking child).

The only requirements for the examiner are a working knowledge of functional anatomy and acquaintance with the motor development of infants. The former is easily obtained by a review of an easily read anatomy textbook, such as that by Hollinshead,[1] and the latter by observation of infants and familiarity with the developmental scale of Gesell and Amatruda.[2]

Palpation

Palpation is usually the first step in examining muscles. This can provide information about tenderness and consistency of the muscle bellies. My routine includes palpation of the calf, posterior thigh, biceps, and forearm muscles. Firm, steady, slowly increasing pressure is applied over the thickest part of the muscle.

Generally, a crying infant will change the character of his cry when painful muscles are squeezed. In an older infant or young child the facial expression serves as a good indicator of muscle tenderness. If there is a probability of patient cooperation and one suspects considerable tenderness, this part of the examination should be postponed.

The resistance or "feel" of the muscle when it is palpated can often provide diagnostic information. A normal muscle belly feels firm. This is quite different from the ropy character of partially denervated muscle, the rubbery feeling of a pseudohypertrophic calf, the smooth lack of resistance of a flaccid or hypotonic muscle, the "woodeny" character of a muscle in polymyositis, or the hard, leathery nature of a muscle which has undergone fibrosis.

Making muscle palpation a part of every patient's examination will soon give the examiner confidence in detecting and differentiating muscle abnormalities.

Examination for Muscle Tightness

Muscle tightness often can direct attention to possible muscle weakness. It usually occurs in the muscle group opposite or antagonistic to the weak or paralyzed group. This is because the functioning muscle tends to be held in a shortened position. For example, in a radial nerve injury with paralysis of the wrist and finger extensors, the wrist and finger flexors may be tight. When this muscle is shortened or tight, wrist flexion must occur to provide the necessary slack to fully extend the fingers. In newborn infants with spina bifida and with questionable function in the lower extremities, tightness in a muscle group suggests function in that group.

There are many causes of joint limitation of motion other than muscle tightness, so it is incorrect to suggest that reduced joint motion per se is associated with muscle weakness. Some other causes are bony incongruity, joint effusion, capsular tightness, ligamentous abnormality, and cartilage injury. However, since most muscles cross more than one joint, muscle tightness can usually be recognized as the offender if joint motion is limited for this reason. For example, the hamstring muscle group crosses the hip and the knee, extending the former and flexing the latter. If the hamstrings are tight, that is, shortened, it will be painful and difficult to extend the knee if the hip is flexed. When the hip is extended, the knee may also be extended.

My routine is to check the calf and foot dorsiflexor tightness by dorsiflexing and plantar flexing the ankle respectively. Next, the hamstring group is examined with straight leg raising to 90 degrees with the patient in the supine position. The anterior thigh group is checked by attempting to put the heel to buttocks with the child in the prone position. Back tightness is demonstrated by attempting to put the forehead on the knees, with the patient's legs hanging over the edge of the bed. Most normal children can accomplish these flexibility tests easily. An exception to this generalization is the neonatal infant, who retains hip and knee tightness for four to six weeks after birth.[3]

The upper extremities are examined for muscle tightness in three areas. The shoulder adductors are tested by placing the arm over the head, the elbow extensors and flexors by flexing and extending the elbow, respectively, and the wrist and finger flexors by extending the wrist and finger simultaneously.

Testing Muscle Weakness

In order to understand why certain maneuvers are used to evaluate muscle weakness in infants, it is first necessary to review briefly conventional muscle grading.

In muscle testing several grades are used to indicate the degree of weakness. One common system is as follows: normal, moves through full range against considerable resistance; good, moves through full range against resistance; fair, moves through full range against gravity only; poor, moves through full range with gravity removed (i. e., weight of the part is supported); trace, tendon moves but no joint motion; and, lastly, zero, no function visible or palpable.

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Corresponding systems are 100%, 75, 50, 25, 10, 0; 5,4,3,2,1,0; and 0,1,2,3,4,5. The latter two are exactly opposite, one grading strength in reducing order and the other grading weakness in increasing severity. The system used at this hospital is the percentage grade. It has the disadvantage of implying accuracy. However, the first mentioned has the disadvantage of use of adjectives which are commonly used in describing physical findings without a specific meaning. Use of the letters N, G, F, P, Tr, and O removes this objection. The other two grading systems are confusing, since they are exactly opposite.

In all of the above methods there are two, admittedly arbitrary, but convenient reference points: first, zero or no function and, second, enough function to move the part against gravity. For example, the grade for the function of the quadriceps if it extends the knee can be said to be fair, 50%, or 3. Function in this muscle can also be said to be "antigravity" or "gravity plus." Conventionally, this middle grade is used only with the proximal limb muscles and the trunk muscles, since the distal groups move such small and therefore light parts of the body. In the distal groups of the extremity, function is noted and can be grossly estimated by the tension of the appropriate tendon.

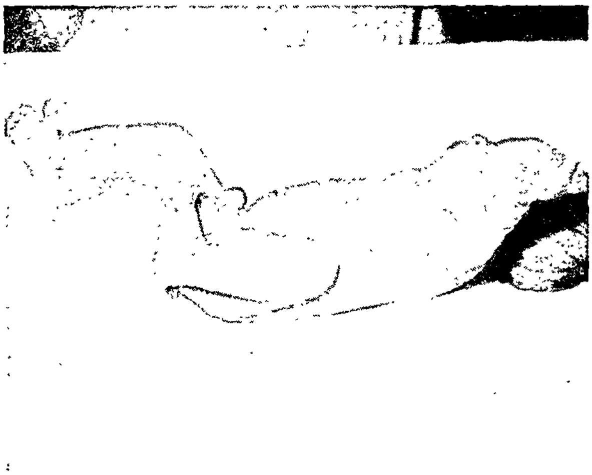

Fig. 1.—Moro embrace reflex. Note that lower extremities participate also.

Cooperation is always relative. In infants and small children the child developmentalist can, with time and persistence, usually elicit a desired activity. However, in a busy physician's office, it is more practical to consider this age group as relatively uncooperative and proceed with maneuvers to obtain desired muscle function in the shortest possible time.

When testing muscle groups in children below the age of cooperation, usually 3 or 4 years, it is most useful to divide them into two categories: those who cannot walk and those who can walk. The former includes infants who have not yet reached that stage of motor development and those older children who by reason of disease or injury cannot walk.

The reason for this division is that walking gives considerable information about muscle function in the lower extremities, the trunk, and, surprisingly enough, the upper extremities. Also, walking can be generally stimulated regardless of cooperation. Byers[4] suggested that often muscle abnormalities were first noted when the child began to walk. This is a common occurrence in my experience. Therefore, in infants and small children who cannot walk it is necessary to elicit muscle function in other ways.

Examination of the Infant

Two steps are apparent in order to examine muscle groups of infants. First, it is necessary to position the infant so that the muscle group being tested can lift the appropriate part of the body against gravity, and, second, the muscle group must be made to contract. This latter step may be difficult. Sometimes the infant will spontaneously move the part desired. In fact, some of the textbooks[5] suggest that many diagnoses of motor weakness can be made by an experienced pediatrician's observation of an infant's activity. Most of the waking time of newborn infants is spent in constant activity. Relative weakness of an extremity may be detected by observing reduced activity. In the older infant the time factor often precludes this approach, since desired function probably will not appear spontaneously.

During the first quarter of the first year of life, most of the activity is reflex in nature. Therefore, it is usually necessary to use reflexes to elicit the desired muscle function in the infant up to 3 or 4 months of age. I routinely examine for the following reflexes[6]:

First, the tonic neck reflex is present at birth and disappears at about 4 months of age. When the head is turned to the side, the arm and leg extend on that side and the arm and leg flex on the opposite side. This is used to elicit knee and elbow flexion and extension.

Second, the grasp reflex is present at birth and disappears at about 4 months of age. The infant's fingers will tighten around an object placed in them. This can demonstrate finger flexion weakness, as in Klumpke's paralysis.

Third, Landau's reflex appears from 6 to 12 months of age and disappears at about 3 years. When the infant is held in the prone position, the head, trunk, and legs extend. This is useful in detecting weakness of the hip extensors and the neck and trunk extensors.

Fourth, the Moro embrace reflex[7] is present at birth and disappears by 4 months of age (fig. 1). When the table on each side of a supine infant is struck with the hands, the infant's arms are thrown out in an embrace attitude describing an arc and tending to approach one another with a tremor. Fingers at first extend and then clench. Similar, though less marked movements, occur with the lower extremities. It becomes asymmetrical when there is weakness of one extremity, as in birth injury with laceration of peripheral nerve (Erb's palsy).

The character of the deep tendon reflexes is occasionally helpful in directing attention to muscle weakness; however, the responses are variable in newborn infants because of the motor activity.[8] The order of their appearance after birth is also variable.

Voluntary motor activity in the infant appears in a cephalocaudal manner. It is useful to simplify the motor development of the first year of life by quarters. In the first three months the infant controls his eyes, in the second three months his head and arms, in the third three months his trunk and hands, and in the last three months his legs, feet, and thumb opposition. Familiarity with developmental patterns is necessary for two reasons. First, voluntary motor activity is used in assessing muscle weakness, and, second, delay in motor development may represent the first sign of weakness.

When activity is present, either spontaneous or elicited, relative weakness of an extremity can be discovered by either of two maneuvers. The one I use most commonly is that of superimposing rapid alternating passive movements on the spontaneous activity, for example, extending and flexing the legs alternately (fig. 2). The weak extremity will resist this movement with less force. Another method is to restrain the spontaneous activity of an extremity and note the force tending to continue the motion.

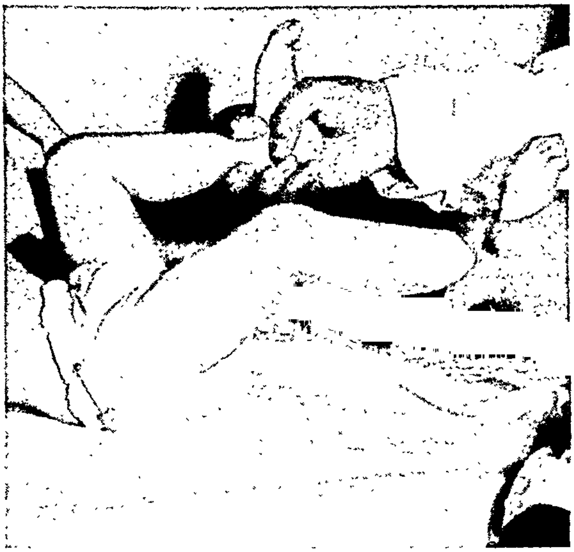

Fig. 2.—Superimposing rapid passive alternating motions on infant's lower extremities. Resistance to such motion is noted in determination of muscle weakness.

If the motor activity is not present spontaneously and has not been elicited by the techniques thus far mentioned, then noxious stimuli are used. For example, pinching an extremity with the infant supine or prone, depending on the group to be tested, will usually result in a withdrawal movement which will demonstrate function in the appropriate muscle group. When one desires to test function in the triceps and deltoid, it is useful to position the forearm and hand so that it will drop on the face. This will usually cause extension at the shoulder and the elbow and can easily demonstrate weakness in these groups. Often, placing a corner of the sheet over the infant's face will result in function of the upper extremities, either reflex or voluntary, to attempt removal.

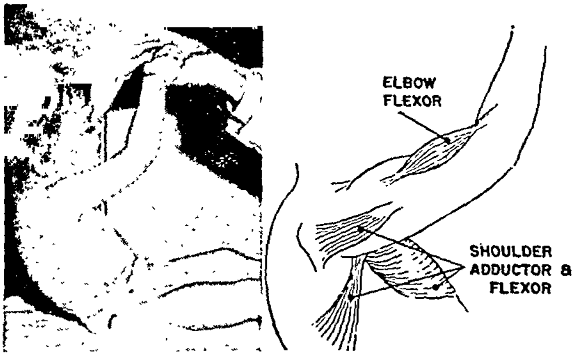

Fig. 3.—Knop test, showing supine infant being pulled to sitting position.

Stroking the sole of the forefoot will cause dorsiflexion of the foot; stroking the heel will cause plantar flexion. With the infant in the prone position and the lower extremities hanging over the edge of the examining table, stroking of the posterior thigh and buttocks will cause the hip to extend, as well as the knee to flex.

I also make the Knop test[9] (fig. 3) a regular part of the examination of each infant. With the infant supine, the hands are grasped and the baby is pulled to the sitting position. The degree of head lag and the attitude of the shoulders and the elbows give clues about arm and neck weakness. Next, the feet are grasped and the buttocks lifted off the table to elicit hip and knee weakness. Although Knop used this to describe the newborn infant's dynamics, it is useful in older infants and children and has been a part of the neurological examination for many years. If there is a head lag after the infant is 4 or 5 months of age, it is suggestive of weakness of the neck flexors or other pathological states resulting in hypotonia of this muscle group. If there is muscle weakness of one leg or arm, that extremity will straighten while the normal extremity will flex at the knee and hip when the lower extremities are lifted.

The shoulder adductors and the scapular stabilizers can also be tested by lifting the infant or child under the armpits with the fingers extended. When these groups are weak or hypotonic, the patient will slide through the examiner's hands. To make this test more sensitive, the infant is gently tossed in the air a few inches and caught in this position.

Chaney and McGraw[6] found that almost one-third of newborn infants would bear weight on the lower extremities when held in the erect position. A similar proportion demonstrated crawling motions when held in the prone position. Perlstein and Barnett[10] noted that reciprocal motions of the lower extremities are present by 2 to 3 months of age at the latest when the infant is held in the erect position (fig. 4). These motor activities can often guide the examiner to discovery of muscle weakness of the lower extremities. Thus, in the space of a few moments, the infant can be pulled to a sitting position, held in erect position, tossed and caught under the armpits, and suspended in the prone position for a fair estimation of the general muscle strength. When the examiner's attention is directed to a possible area of weakness, specific muscle function can be elicited.

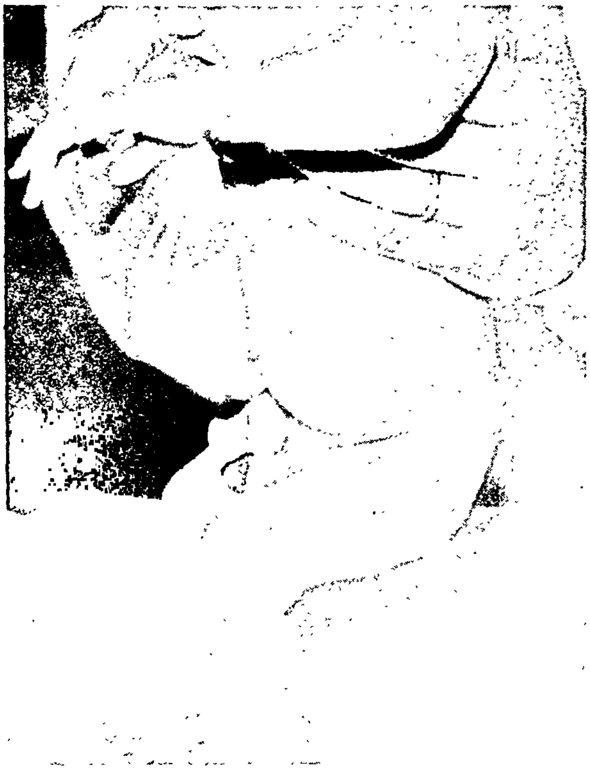

Fig. 4.—Infant held erect to demonstrate reciprocal motions of legs. Infant shown was 4 days old.

Observing spontaneous activity, eliciting reflex activity, understanding normal motor development, and using ingenuity to stimulate specific groups provide a systematic approach to detecting muscle weakness in children under one year of age.

Examination of the Walking Child

Active walking is associated with considerable muscle activity, so that muscle weakness in the trunk and lower extremities can be discerned. Although the gait pattern is not stabilized until about the age of 7, the requirements of maintaining an erect posture over two moving extremities are such that careful analysis of the child's gait pattern will provide clues about muscle weakness. If the gait appears relatively normal, the child can be made to walk on his toes and on his heels and then run and hop, squat, and stand up to bring out less apparent difficulties. The child of 2 years can run after a fashion and at 3 years runs well, but he usually cannot hop until 4½ years of age.

The walking base of the small child is often mentioned during the neurological examination. This is the distance between the medial edge of the heels when they are in the same frontal plane. Such descriptions as wide and narrow are applied to the base without really specific values in mind. There are factors which alter the width of the base other than neurological factors, for example, the angle between tibia and femur and the femoral neck angle. Generally, a wide base, more than 3 or 4 in. if there is no genu valgum, points to genuine instability in a child who has walked for four to six months.

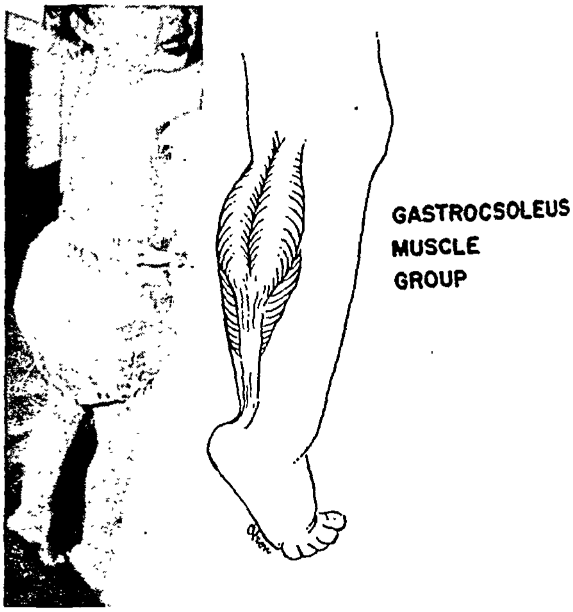

Fig. 5.—Standing on toes to demonstrate function of gastroc-soleus group.

If the child is taken from his parents and set on the floor 10 or 15 ft. away, he will usually rise to the standing position, run to his parent, there rise on his toes, and reach with his arms outstretched. This provides a good estimation of the strength of the proximal groups of the lower extremities as he stands and of the proximal groups of the upper extremities and the gastrocnemius-soleus groups when he reaches his parents. If the parent is not present, the same result can be easily accomplished by taking the child away from his bed (fig. 5).

If it is impossible to get the child to walk on his heels, the foot groups are tested by stroking the sole of his forefoot, or, in the standing position, if the patient is distracted in the opposite direction of the pull of the muscle group to be tested, the muscle will contract in an attempt to regain balance. This is done with a finger over the tendon, which immediately tenses as the appropriate muscle contracts. Groups which can be tested with this technique are the "guy wire" muscles of the feet, that is, posterior tibial, anterior tibial, peroneal, and gastrocnemius-soleus.

Holding the child with the examiner's arm around the upper thighs and allowing the patient to jack-knife forward and then extend his head and trunk will give a good estimate of the neck, back, and hip extensors (fig. 6). This, in effect, is using the Landau reflex.

Abdominal muscles are best tested by sit-ups. It has been recognized for some time that a child cannot come to the sitting position when lying supine without using hands until the age of 4 or 5. In my experience, 4 years has been the average age. I believe that this is related to the migration of the center of gravity of the body, which at about the age of 5 passes caudal to the umbilicus.[11] This means that until this age more than 50% of the body weight is above the axis around which the trunk flexors act, putting them at considerable disadvantage. To insure maximum effort in the sit-up test it is helpful to assist the child by pulling on a few strands of hair as he attempts to come to the sitting position.

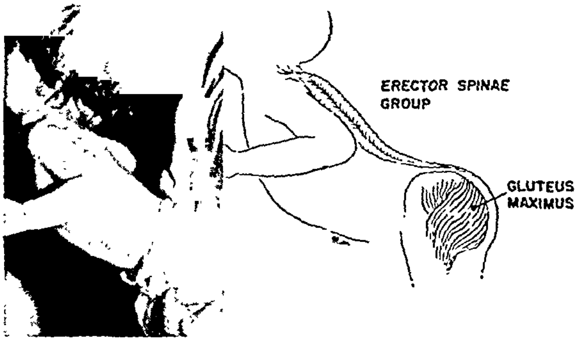

Fig. 6.—Holding child by thighs to demonstrate trunk and hip extensor function.

In the cooperative child, it has been a constant observation that, when instructed to hold the part against the examiner's resistance, if there is true muscle weakness present he will assist with an uninvolved extremity, either hand or leg.

As the examination is concluded, dressing techniques are used to elicit muscle function previously unobtained or to verify earlier observations. The relieved young child will often cooperate quite well in raising his arms to put on a blouse, shirt, or coat held rather high (fig. 7). This can demonstrate antigravity function of the proximal upper extremity muscles. He will often bear his weight well on one leg as his pants are put on and raise his leg and foot for socks and shoes.

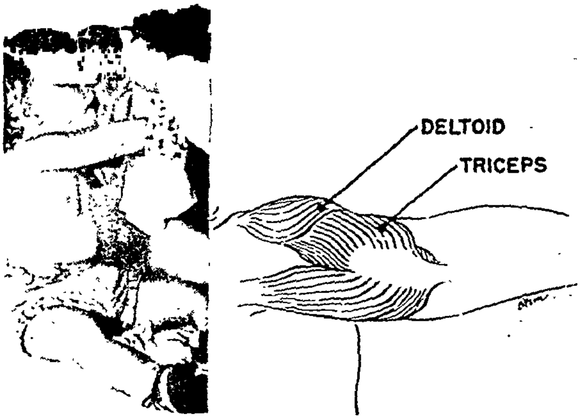

Fig. 7.—Dressing technique to demonstrate triceps and deltoid function.

No mention has been made thus far about the importance of the history. On several occasions during the past year I have been asked to see small children who, their parents insist, fall frequently or behave abnormally in terms of motor development. Although I have been unable to demonstrate clinical weakness, I always believe the parent and go to the laboratory for objective assistance in detecting disease of the motor unit.

Electromyographic Examination

The most sensitive method to date of detecting abnormalities of the motor unit is the electromyographic examination. The electromyograph is composed of an electrode system, an amplifier, an oscilloscope, a loud-speaker, and a storing device, such as a camera or tape recorder (fig. 8). It picks up, amplifies, and indicates the action potential of the muscle fiber. This is the electrical activity immediately preceding the contraction.

A group of muscle fibers numbering from a few to 1,000 or more, depending on the muscle, together with the lower motor neuron is termed the motor unit. The summation of the action potentials of the muscle fibers comprising the motor unit is viewed on the oscilloscope and heard over the loud-speaker as a motor unit action potential. Disease or injury of the motor unit alters the pattern of voltages picked up by the electromyograph.

Diagnostic potentials in the various clinical conditions affecting the motor unit are present when the muscle is at rest, as well as when the muscle is active. Thus, a similar situation to the clinical examination exists in the electromyographic examination. First, the voltages must be noted when the muscle is at rest, at both insertional and spontaneous activity, and then when it is active, at both minimal and maximal contraction. Techniques to obtain specific muscle group activity have been described, but it is a most difficult problem to obtain muscle relaxation in an infant or small child. This is especially difficult in a newborn infant in the waking state. This also presents a problem when the child is in the uncooperative age, that is, between 1 and 3½ or 4 years of age, when the child is easily frightened and upset in a strange environment. The procedure itself is associated with a minor amount of discomfort; however, the semidarkened room and the noises over the loud-speaker often serve to disturb the small child even more. In general, the most satisfactory examinations are done in children under 1 and over 4 years of age. In the latter age group they are usually old enough to understand and follow instructions. In preparing the child for the examination, it is suggested to them that they "will see their muscles on television." A simultaneous pinch or slap with insertion of the needle electrode will usually allow the insertion to pass unnoticed. The presence of a parent in the room during the examination is absolutely interdicted.

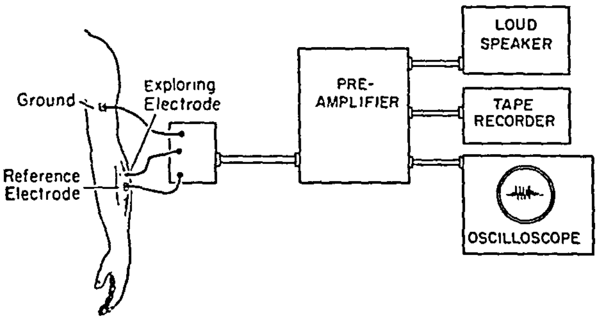

Fig. 8.—Schematic representation of components of electromyograph.

The approach I use to the electromyographic examination in an infant or an uncooperative small child is to examine first muscles which are inactive, usually, for example, the intrinsic muscles of the hands and feet, that is, extensor digitorum brevis, abductor digiti quinti pedis, opponens, hypothenar eminence, and first dorsal interosseus. The opponens is generally not active voluntarily until the child is 36 to 38 weeks of age.

Second, the muscle to be examined is positioned in a most unfavorable position for activity. This is usually, but not always, in its shortest length. In examination of the anterior tibial, dorsiflexion of the foot to an extreme degree will often discourage muscle contraction (fig. 9). Conversely, the long head of the triceps is usually not active with the elbow flexed to more than 120 degrees.

As was mentioned previously, most of the difficulty is with children from the ages of 1 to 4 years. Here it is felt that sedation is occasionally helpful; however, if used too heavily, one is unable to obtain maximum contraction, and, if it is used in smaller dosages, the child will become aroused after one or two muscles have been investigated. During the past year, with an average of 50 electromyographic examinations each month, of which at least half were in children, it has been found necessary to use sedation in only two instances. Once an electromyographic abnormality is demonstrated, the next problem is to determine the distribution of that abnormality. This requires investigation of muscles other than those mentioned earlier, so that the examiner's patience and ingenuity is tested.

An additional determination which adds another dimension to electromyography is the measurement of the nerve conduction velocity. This is helpful in localizing diseases of the motor unit to the axon of the lower motor neuron. It is the stimulation of the motor nerve at two locations along its course, photographing the stimulus artifact and the muscle response with an appropriate time base. After the distance on the skin between two points of stimulation is measured, counting the time base between stimulus artifact and the muscle response on the photograph, the nerve conduction velocity is calculated in meters per second. This is usually reduced in chronic diseases affecting the axon, such as infectious neuronitis, regenerating injured peripheral nerves, and polyneuritides of various types. The nerves most accessible for this study are the ulnar and median nerves in the forearm and the common

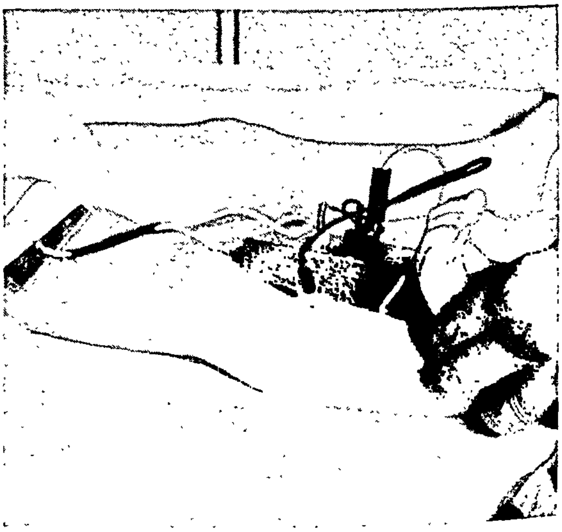

Fig. 9.—Foot in passive dorsiflexion to discourage voluntary activity of anterior tibial. Note position of needle electrode and ground.

peroneal nerve and posterior tibial in the leg. In these nerves the conduction velocity varies from 45-70 meters per second in the adult. The conduction velocity of newborn infants is reduced[12] and does not approach the adult standards until the child is 3 or 4 years of age.

The accurate clinical determination of muscle weakness in an infant or uncooperative small child is of paramount importance in the proper diagnosis of diseases of the motor unit. If the history or examination suggests weakness which cannot be localized clinically, the electromyographic examination can prove very helpful. The following case illustrates this point.

A 3-year-old boy was admitted to Children's Hospital in November, 1957, with a chief complaint of "not walking right." For several months he had been complaining of stiffness and soreness of his muscles without a clear-cut febrile illness. Physicians, including a neurologist, pediatrician, orthopedist, and internist, had entertained diagnoses from poliomyelitis to no disease present. Physical examination demonstrated mild generalized symmetrical weakness with function of the proximal limb muscles rated as barely "antigravity." Palpation of muscle bellies suggested increased resistance and elicited moderate tenderness. The electromyogram showed small, short, duration potentials with increased proportion of polyphasic potentials and many fibrillation potentials. This was interpreted as most suggestive of polymyositis. The serum transaminase level was within the upper limits of normal. Muscle biopsy showed degenerative muscle fibers with round cell infiltration. When reexamined in six months, he had developed characteristic skin lesions of dermatomyositis.

Summary

The detection of muscle weakness in infants and small children depends on three principles: (1) understanding the normal motor developmental pattern of infants, (2) knowing functional anatomy, and (3) developing techniques to elicit specific muscle group activity.

Using these three approaches, any physician dealing with this age group can become surprisingly adept in the diagnosis of muscle weakness. When the clinical examination suggests weakness or the physician suspects a disease or injury of the motor unit in the absence of physical findings, the most sensitive method of detecting and localizing such pathology used to date is the electromyographic examination.

Children's Hospital, 17th Street at Livingston Park.

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STRESS AND DIABETES.—On clinical, statistical and experimental evidence all forms of stress play an important part in the disturbance of good control in diabetes. The effect of emotional stress, usually anxiety, is apparent in the older group of mild, obese, insulin-resistant cases. In the younger group of acute, thin, insulin-sensitive diabetics, stress due to associated endocrine imbalance is more common. It is probable that emotional stress is never the sole etiological agent in diabetes, but may have an additive or precipitating effect. As no single diabetogenic hormone has yet been isolated it is assumed that the mechanism is under hypothalamic control and may be in the nature of an overflow from adrenocorticotropic, gonadotropic and thyrotropic hormones stimulating the growth hormone. . . . Attention is drawn to the association of the premenstrual syndrome, stress, and fluctuation in diabetic control. Recurrent coma seems to occur in individuals of poor moral stamina and inadequate personality who, on one pretext or another, omit their insulin and lapse into coma to avoid an unpleasant life situation. A plea is made for the management of certain categories of diabetics in special units where the staff can become interested and competent to care for them in such a way as to give maximum security, education and encouragement.—J. B. Walker, M.D., Stress and Diabetes. *The Practitioner,* May, 1957.

TREATMENT OF THROMBOSIS WITH FIBRINOLYSIN (PLASMIN)

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and
Clara M. Ambrus, M.D., Ph.D., Buffalo

The possibility of dissolving a recent thrombus by the intravenous administration of a fibrinolytic enzyme was studied in a series of patients. Fibrinolysin (plasmin) was prepared in several ways from human and bovine plasma, and preparations were obtained from other laboratories also. Altogether 114 infusions of fibrinolysin were given to 37 volunteer patients, most of whom had incurable cancer. Thirteen episodes of acute thrombophlebitis, occurring in 10 patients of this series, were treated. In five of the eight cases in which the age of the thrombus was three days or less, complete resolution was obtained. When improvement did occur, the pattern of response was fairly uniform; pain was relieved within 24 hours, color improved and tenderness disappeared shortly thereafter, and edema disappeared within a few days. The results, which were sometimes striking, are illustrated in 14 case histories. Fibrinolysin was ineffective when given a week or more after the first manifestations of thrombosis, and it did not prevent the formation of fresh thrombi. The mechanism of its action upon blood clots in vitro as well as the clinical experiences here reported argue in favor of simultaneous administration of anticoagulants with fibrinolysin in the management of acute thromboses.

Arterial and venous thromboses are a major cause of morbidity and mortality. Much has been accomplished in recent years to lessen the toll of thrombotic diseases through the use of anticoagulant therapy, often continued for years or for life, in patients who have had serious thrombotic episodes. However, anticoagulant therapy serves only to prevent further thrombotic complications; it does not remove clots which have already formed. Several attempts have been made to treat acute thromboses with agents that showed promise of dissolving existing thrombi. Potent proteolytic enzymes, such as trypsin and chymotrypsin, have been administered locally or systemically to patients suffering from vascular thromboses or from diseases characterized by undesirable fibrin deposition.[1] Although the local administration of such enzymes is widely practiced, systemic use has not met with general acceptance. In addition to such hazards as sensitization to foreign protein and the severe side-reactions which may follow systemic administration in adequate doses, the lack of specificity of these enzymes is a serious disadvantage. Studies in this laboratory indicated that systemic doses of trypsin, chymotrypsin, crude pancreatic protease, papain, and ficin, sufficient to produce intravascular lysis of experimental clots in dogs, also produced falls in the levels of several proteins involved in the blood clotting system, occasionally resulting in fatal hemorrhage.[2] Only preparations of fibrinolysin (plasmin) were able to lyse venous or arterial clots at nontoxic concentrations.

Fibrinolysin is a proteolytic enzyme which manifests selective affinity for fibrin as a substrate.[3] Its physiological role is believed to be the lysis of the fibrin deposits in blood vessels and tissues which result from the minor injuries and spontaneous thromboses of everyday life.[3c] Many excellent reviews dealing with fibrinolysin have appeared in recent years.[4] The following account is a somewhat simplified summary of our present knowledge of this important biological agent.

Fibrinolysin absorbs selectively to fibrin and hydrolyzes it into smaller soluble fragments. Free fibrinolysin is not normally found in the blood. A precursor, profibrinolysin (plasminogen) is a normal constituent of the plasma. Profibrinolysin is transformed to fibrinolysin by a number of activators found in tissues and in various secretions (urine, tears, milk, saliva, and seminal fluid). In the latter areas, profibrinolysin activators may play a physiological role in keeping narrow channels of excretion open. Tissue activators may appear in the circulation during stress, muscular exercise, and hypoxia and after epinephrine injections. Blood also contains an antifibrinolysin factor which can rapidly neutralize fibrinolysin.

The physiological relationship of clotting mechanisms to the fibrinolytic system is illustrated in figure 1. When tissues are damaged, thromboplastin is liberated and the complex mechanism of clotting, leading to fibrin deposition, is initiated. Fibrin promotes hemostasis and forms a matrix for reparative processes. Profibrinolysin (plasminogen) activators are also released at the injured site. Circulating profibrinolysin is locally converted into fibrinolysin, binds to the fibrin fibers, and dissolves

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From the Roswell Park Memorial Institute and the University of Buffalo Medical School.

them after a period of time. Thus, repair can proceed without scar formation. Circulating antifibrinolysin binds and inactivates any excess of free fibrinolysin in the circulation.

In some disease states, notably, carcinoma of the prostate, large amounts of free fibrinolysin appear in the blood and lead to a hemorrhagic diathesis. On the other hand, we have seen some patients who suffered from repeated thromboses and were found to have very high levels of circulating antifibrinolysin. Deficiencies in the fibrinolytic system were recently implicated in the development of atherosclerotic lesions on the basis of excessive fibrin deposits in the intima.[3c]

Human profibrinolysin is obtained as a product of blood plasma fractionation. It can be activated artificially in several ways. A potent activator is bacterial streptokinase. Almost as potent is the enzyme urokinase, derived from human urine. Spontaneous conversion of profibrinolysin to fibrinolysin takes place under certain physical and chemical conditions; however, this is an inefficient way to prepare fibrinolysin. Bovine fibrinolysin can be produced by activation with chloroform. The physical and biochemical properties of fibrinolysin vary somewhat with different methods of activation and preparation.[5]

We have investigated various methods of preparation and purification of fibrinolysin, starting with crude profibrinolysin fractions obtained from pooled human or bovine plasma. Changes in preparative technique have resulted in major alterations in the fibrinolytic activity of the final product. In some cases we encountered considerable variation in potency from batch to batch, even when the same technique of preparation was used. In general, however, we have been able to produce fibrinolysin of satisfactory potency by several different methods. A number of preparations were obtained from other investigators. A large number of different preparations were tested in animals for in vivo fibrinolytic activity. These studies have been reported in detail.[2b] A brief summary follows: Radioactive arterial and venous clots were produced in dogs, rabbits, and monkeys. Semiconstricting ligatures were left in place to prevent dislodgment of the clots. The fate of the clots was followed in several ways—by continuous recording of radioactivity over vessel segments containing the clots, by phlebography with iodopyracet (Diodrast), and, in some cases, by direct visualization. Control clots remained in place satisfactorily and showed only slight declines in radioactivity over periods of seven days. Although the vessels remained effectively obstructed, small amounts of iodopyracet were seen to pass the

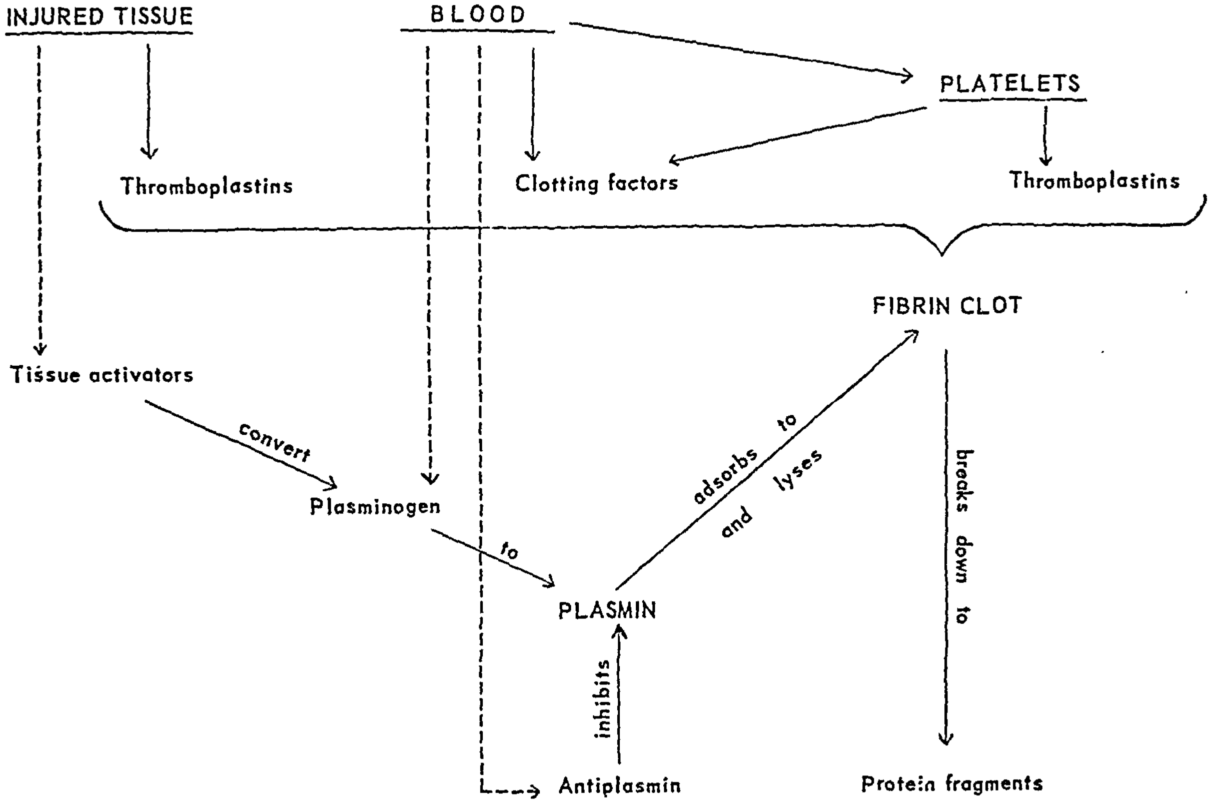

Fig. 1.—Simplified diagram of relationship between blood clotting and fibrinolytic systems.

thrombosed segments, indicating that the fibrin meshwork did not completely block blood flow and that intravenously administered agents may be able to permeate the interstices of a fresh clot. Serial histological studies of clots induced in dogs showed beginning endothelialization and organization of clots at three days, proceeding rapidly thereafter.[6] Fibrinolysin was infused intravenously at a distant site at various time intervals after the formation of radioactive clots in dogs. When the interval between formation of the clot and administration of fibrinolysin was 72 hours or less, clot lysis was observed in most experiments. This was demonstrated by decrease or disappearance of radioactivity over the vessel segment, by phlebographic visualization of open vascular segments, and, in superficial clots, by direct observation. Clots three days of age or older showed only partial or no lysis.[7] Acute and subacute pharmacological studies in mice, guinea pigs, rabbits, dogs, and monkeys were performed with various potent preparations of fibrinolysin. With most preparations no significant toxic manifestations were observed at dosage levels considerably in excess of those required to produce in vivo clot lysis. Most preparations were nonpyrogenic for rabbits.

On the basis of these animal experiments, several fibrinolysin preparations were selected for trial in man. The patients used were volunteers, most of whom had incurable cancer. The principal indications for therapy were acute and subacute peripheral thromboses and certain edematous states. Since one of the principal purposes of this study was to compare the side-effects of various preparations, patients were accepted for treatment even though the diagnosis was questionable. Such cases are excluded from the therapeutic evaluation, however. In most cases, two or more different preparations were administered during a course of therapy.

Methods

Diagnosis and Evaluation of Therapeutic Effect.—Standard criteria for the diagnosis of thrombophlebitis were used. Most patients gave typical clinical histories of pain and swelling of an extremity developing rapidly over a period of a few hours to two days. A few bedridden patients were observed to have developed edema and cyanosis of a leg overnight without spontaneous pain. In cases of superficial thrombophlebitis, typical signs of inflammatory reaction over the involved veins were observed. In such cases, thrombosed veins could be palpated easily. All patients had tenderness over the involved area. Homans' sign was positive in patients with deep thrombophlebitis of the calf. Lowenberg's cuff test[8] was used as a quantitative measure of compression tenderness. In a few cases, venous occlusion was demonstrated by contrast venography. The age of the thrombophlebitis was estimated from the clinical history. Onset was dated from the first definite symptoms or signs.

Serial observations of the following points were carried out on all patients diagnosed as having thrombophlebitis: evaluation of symptoms, presence of Homans' sign, results of Lowenberg's cuff test, circumference of extremity at several points, degree of edema, intensity of cyanosis, and degree of visible inflammatory reaction. A typical clinical progress sheet is discussed below. In some cases, skin temperature recordings were obtained at several points. Evaluation of therapeutic response was based on these observations. In one case, reopening of major venous channels was demonstrated by venography. No patient is listed as having a "complete resolution" unless the signs and symptoms of thrombophlebitis disappeared within one week of the beginning of therapy. Patients were classified as "improved" if marked resolution by most criteria occurred within one week but some abnormalities persisted.

Arterial occlusion was diagnosed by the typical history of rapidly developing pain, coldness and discoloration in an extremity associated with the characteristic findings of pallor or mottling, and absent arterial pulses below the point of occlusion. The diagnosis was confirmed by determination of skin oxygen tension before and after inhalation of pure oxygen.[9] The application of this method is illustrated below.

Other diagnoses were made by the usual clinical criteria and require no detailed discussion here. In all cases, patients were examined by two or more physicians not associated with this project and the diagnoses under which patients are classified were unanimously agreed on.

Additional Clinical and Laboratory Observations.—Before, during, and after fibrinolysin infusions determinations were obtained of blood pressure, pulse rate, respiration rate, temperature, electrocardiographic tracing, basal metabolic rate, hemoglobin level, hematocrit value, white blood cell, platelet, and differential counts, blood fibrinolysin, profibrinolysin, and antifibrinolysin levels,[2b] fibrinogen level, prothrombin time, and Lee-White coagulation time. In some cases more detailed study of factors of the blood clotting system was undertaken.

Fibrinolysin Preparations.—The fibrinolysin preparations used in this study were of five general types, as follows: (*a*) human profibrinolysin prepared from pooled plasma obtained from the American Red Cross Blood Program, activated with an excess of crude streptokinase (Varidase or Streptokinase); (*b*) various purified fractions of the above, from which much material of streptococcic origin had been removed; (*c*) human profibrinolysin activated with human urokinase; (*d*) human profibrinolysin allowed to activate spontaneously; and (*e*) bovine profibrinolysin activated with chloroform. Details of the methods of preparation of these fractions and their individual characteristics will be presented elsewhere.[10]

Fibrinolysin was administered by intravenous infusion over a two-to-four-hour period. The usual dose was 15 Loomis units [11] per kilogram of body weight, administered in 500 to 1,000 ml. of saline solution. All preparations of fibrinolysin were found to lose activity rapidly at room temperature. Infusion bottles were therefore placed in a refrigerated holder.

Results

A total of 114 infusions of fibrinolysin was given to 37 patients. Side-reactions to these infusions varied greatly, depending on the preparation used. There was also moderate variation among different patients receiving the same preparation.

The worst side-reactions were induced by preparations containing an excess of crude streptokinase. Malaise, nausea, tachycardia, and cutaneous vasoconstriction were the initial manifestations of these reactions and appeared about one to two hours after the beginning of the infusion. Elevation of the basal metabolic rate was noted at this time. Soon afterward, one or more shaking chills occurred, followed by fever. The basal metabolic rate rose as much as 150%. Premedication with antipyretics, analgesics, chlorpromazine, and antihistamines reduced the intensity of these reactions but did not abolish them. Intravenously given amobarbital sodium (sodium Amytal) or thiopental (Pentothal) sodium, administered during the premonitory stage of malaise in doses sufficient to induce sleep, completely prevented the chills and reversed the cutaneous vasoconstriction. This medication was effective in arresting chills even when given during the height of these reactions. However, the elevation of metabolic rate and the height of the temperature were not affected by these hypnotics, even though muscular contractions and heat conservation by the skin were blocked. Increase in blood pressure was noted during the early stages of these severe reactions and was sometimes followed by hypotensive episodes two to six hours after the infusion. In a few patients, electrocardiographic changes were observed during the height of the reaction. Recovery from these side-reactions was complete within 2 to 12 hours.

Variation of the methods of preparation and of the activators used resulted in a series of preparations with decreased toxicity. Finally, two human fibrinolysin preparations were obtained which produced slight or no side-effects. One of these was a purified, streptokinase-activated preparation; the other was activated with urokinase. Even the nontoxic streptokinase-activated preparations were antigenic and resulted in the production of antistreptokinase antibodies and skin sensitivity to crude streptokinase. The urokinase-activated preparation did not induce antibody production or skin sensitivity.

Spontaneously activated human fibrinolysin and chloroform-activated bovine fibrinolysin caused few or no side-reactions. However, these preparations appeared to be less effective than the streptokinase-activated or urokinase-activated human preparations.

The therapeutic results in 26 episodes suitable for evaluation are discussed below.

Peripheral Thrombophlebitis.—Thirteen episodes of acute thrombophlebitis, occurring in 10 patients, were treated. In addition to fibrinolysin therapy, standard nursing procedures and conservative symptomatic therapy were employed, including bed rest, a cradle to lift bed covers over the affected extremities, analgesics, sedatives, and other treatments. In seven instances, anticoagulant therapy was withheld until fibrinolysin treatment and evaluation of the response was completed. Antibiotics were administered in one case. The age of the thrombotic processes at the time of institution of therapy was one day or less in six instances, 2 to 3 days in two instances, 4 to 5 days in four instances, and 10 days in one.

Table 1 presents the therapeutic response in these cases. Complete resolution was obtained in five of the eight instances where the age of the process was three days or less, and definite improvement was seen in one other. Among the older processes, complete resolution was seen in one, improvement in two, and no effect in two. The pattern of response was relatively uniform in the cases where improvement was observed. Pain was relieved rapidly and usually disappeared within the first 24 hours. Color changes and tenderness to pressure were the next to respond. Resolution of edema took longer and was sometimes incomplete several days after all other signs had disappeared. Since most of these patients had disseminated intra-abdominal cancer, however, it is difficult to evaluate the significance of the slow clearing of edema. Partial obstruction of pelvic and abdominal veins and lymphatics may have been the principal reason for the slow response in many of these cases. Individual case reports follow:

Case 1.—A 34-year-old woman with far-advanced carcinoma of the stomach and intreperitoneal dissemination developed acute thrombophlebitis of the left leg. The leg was obviously swollen and cyanotic; distended superficial veins could be seen. Homans' sign and the cuff compression test were strongly positive. Fibrinolysin therapy was started about 24 hours after onset of thrombophlebitis. She had moderately severe side-reactions to the first infusion, with malaise, chills, temperature of 103.2 F (39.5 C), and basal metabolic rate of +117%, in spite of premedication with 0.6 Gm. of aminopyrine and 50 mg. of chlorpromazine. On the following morning the color of the left leg was almost normal. Homans' sign was equivocal, and there was subjective improvement. The second infusion induced a mild febrile reaction, with a maximum temperature of 101 F

(38.3 C). Rapid improvement continued. Homans' sign became negative on the third morning, and treatment was discontinued. There was still slight edema of the leg at this time. Two days later, however, the leg appeared entirely normal and there were no signs or symptoms of thrombophlebitis. Table 2 presents some of the clinical observations recorded during therapy and is illustrative of the techniques used to evaluate results in this series. The patient's general condition deteriorated rapidly, and she died a few days later. Shortly before death, signs of venous thrombosis again appeared. Autopsy revealed a fresh thrombus in the left iliac vein and pulmonary embolization.

TABLE 1.—*Clinical Course of Ten Patients with Thrombophlebitis Treated with Fibrinolysin*

Case, No.	Involvement	Age of Process, Days	No. of Fibrinolysin Infusions/Days	Other Therapy	Response, No. of Days After First Fibrinolysin Infusion: Pain-Free Motion	Color Normal	No Edema	Homans' Sign Negative	Serial Phlebograms
1	Deep, left leg	1	4/2	...	1	1	4	2	
2	Deep, right leg	4-5	6/6	...	1	2	6	4	
	Deep, left leg	1	7/6	...	1	2	Incomplete effect	3	Opening of thrombosed veins
3	Superficial, left leg	10	6/6	...	No effect				
	Superficial, right forearm	1	4/4	Heparin	Transient partial improvement				
	Superficial, left shoulder	1	3/3	Heparin	1	2	2		
4	Deep, left calf	1	5/5	Heparin, bishydroxycoumarin	No effect				Progression of thrombosis
5	Deep, right calf	1	4/4	Heparin, bishydroxycoumarin	1	1	4	2	
6	Superficial and deep, right leg	2	2/1	...	1	2	2	1	
7	Deep, left leg	3	4/3	...	2	2	2	2	
8	Deep, right leg	4-5	2/2	Heparin	1	6	6		No change
9	Deep, left leg and femoral artery	5	4/3	Heparin	4	4	Incomplete effect	3	
10	Deep, right leg	5	1/1	...	No effect				

TABLE 2.—*Criteria of Response to Fibrinolysin Therapy in Case 1**

		Cuff Test, Mm. Hg†							Circumference, Cm.				
		Arm		Thigh		Calf			Thigh		Calf		
Date and Treatment	Color of Leg	Right	Left	Right	Left	Right	Left	Homans' Sign	Right	Left	Right	Left	Subjective Report on Left Leg
1/16	Mottled	200	180	190	90	160	80	+	38	44	30.5	35.5	Heavy, warm
1/17 Fibrinolysin, 5 units/kg. of body weight	Less mottled	170	180	80	80	110	70	+	38	44	30	35	Heavy
5 units/kg. of body weight	Only trace mottling	200	200	120	80	100	80	+	38	44	30	34	Heavy
1/18 Fibrinolysin, 5 units/kg. of body weight	Almost normal	220	200	110	80	90	100	±	35.5	38.5	29	35.5	Heavy, feels better
10 units/kg. of body weight													
1/19	Normal	150	240	150	120	140	105	—	35	38	31	36	Not different from other leg
1/21	Normal	200	180	150	130	150	140	—	37	38	30	33	Normal

* Inoperable gastric carcinoma, gastric hemorrhage, and thrombophlebitis of left leg.
† End-point, report of pain by patient.

CASE 2.—A 39-year-old woman with advanced metastatic ovarian adenocarcinoma developed thrombophlebitis of the deep veins of the right leg. The process was four to five days old when she was referred to us. The leg was obviously swollen. Homans' sign and Lowenberg's cuff test were positive. Temperature was 100.6 F (38 C). Fibrinolysin was administered daily for five days. The first infusion induced mild chills, lasting about 10 minutes. There were no side-reactions to subsequent treatment. Sixteen hours after the first infusion, the patient reported that the right leg became "less tight" and she could bend it for the first time in several days. There was a slight decrease in the pressure sensitivity of the right calf. On the following day there was further decrease in pressure sensitivity and in the circumference of the right leg. Rapid improvement continued. On the fourth day, pressure sensitivities in the two legs were equal and Homans' sign was equivocal. After one week, the patient was asymptomatic and ambulatory, Homans' sign was negative, and the leg appeared normal. Anticoagulants were not administered, and the patient was discharged a week later.

Two days after discharge, the patient returned with acute thrombophlebitis of the deep veins of the left leg, of about one day's duration. The leg was edematous and highly sensitive to pressure. Homans' sign was strongly positive. Venograms were obtained by applying a tourniquet above the ankle and forcibly injecting diatrizoate (Hypaque) sodium into a superficial vein of the dorsal surface of the foot. The dye dissipated slowly and filled only the superficial veins of the leg. All deep venous channels appeared to be occluded (fig. 2A). Fibrinolysin was administered for six days, with mild reactions on two occasions. Pain subsided within 24 hours, and she was able to move the leg without difficulty. Pressure sensitivity returned to normal in two days. Homans' sign became negative after three days. The circumference of the leg decreased but did not return to the prethrombosis level. Repeat venograms, with identical technique, demonstrated reopening of the tibial vein (fig. 2B). The patient was then treated with heparin and bishydroxycoumarin and was discharged a week later on maintenance bishydroxycoumarin therapy. Two months after discharge the patient was doing well, without recurrence of thrombosis.

CASE 3.—A 72-year-old woman with agnogenic myeloid metaplasia and a history of several hemorrhagic and thrombophlebitic episodes was admitted with pain and swelling of the left leg of about 10 days' duration. Pitting edema of the leg and marked inflammatory reaction along the course of the superficial saphenous vein were noted. The thrombosed vein was palpable and exquisitely tender. Platelet count was 2,500,000 per cubic millimeter. Venography revealed occlusion of the major superficial veins, but patent deep veins. Fibrinolysin was administered for four days with one moderately severe reaction and one mild reaction. No improvement was seen; pain persisted and edema of the extremity increased. Heparin therapy was instituted, but it proved difficult to hold the clotting time within therapeutic limits; the patient appeared to require much more than the usual doses of heparin. During the following days additional areas of thrombophlebitis appeared, involving the right forearm and the left upper arm and shoulder (sites of intravenous therapy). Fibrinolysin therapy was reinstituted, and the dosage of heparin was increased. Only partial and transient improvement was noted in the superficial thrombophlebitis of the right forearm. However, the edema, tenderness, and inflammatory reaction of the left upper arm, shoulder, and anterior part of the chest resolved completely in 48 hours. Edema of the left leg and thigh increased. Fibrinolysin therapy was discontinued, but energetic anticoagulant therapy was maintained. Slow, gradual improvement in the areas of residual thrombosis occurred during the next two months.

Case 4.—A 74-year-old man with inoperable adenocarcinoma of the rectum underwent sigmoid colostomy. Nine days later he developed pain and swelling of the left calf. Homans' sign and Lowenberg's cuff test were equivocal. Venograms showed thrombosis of the posterior tibial vein and partial obstruction of the anterior tibial and femoral veins. Fibrinolysin therapy was started on the following day and continued for five days. He also received anticoagulant therapy with heparin and bishydroxycoumarin. He had a mild reaction to the third fibrinolysin infusion and a moderately severe reaction, followed by a hypotensive episode, after the fifth infusion. The leg remained swollen. Repeat venograms one week after the initial study showed progression of the thrombotic process, with extension of the femoral thrombosis. Gradual improvement in the condition of the leg occurred during the next four weeks, but some edema was still present at the time of discharge.

Case 5.—A 62-year-old man with generalized arteriosclerosis, arteriosclerotic heart disease, and carcinoma of the urethra underwent radical curative surgery and had a prolonged convalescence. One month after the operation he complained of pain in the right leg. On examination the leg was found to be warm and swollen. Homans' sign and Lowenberg's cuff test were positive. Heparin and bishydroxycoumarin were administered, and fibrinolysin therapy was started. He received four infusions of fibrinolysin on successive days, with mild reactions to the first three. Striking subjective improvement and decrease in edema were noted on the morning after the first infusion. One day later, Homans' sign became negative. Four days after the first fibrinolysin infusion, the leg was entirely normal.

Case 6.—A 74-year-old woman with carcinoma of the cervix, arteriosclerotic heart disease, and a history of bilateral thrombophlebitis of the legs and prophylactic femoral vein ligations done five years previously developed pain in the right calf. On examination one day later, she had a strongly positive Homans' sign and an inflamed, tender area on the medial aspect of the calf. She was considered to have both superficial and deep thrombophlebitis. She received two infusions of fibrinolysin, with moderately severe chills and fever after the second dose. On the morning after the first infusion, Homans' sign was negative and the area of superficial involvement was strikingly improved. By the following day, there were no residue of the acute episode.

Case 7.—A 52-year-old woman was intermittently treated with radiation for 10 years in another hospital for lymphosarcoma. During the follow-up observation period, she developed adenocarcinoma of the cervix. Intravaginal radium treatment was given. After completion of therapy, tenderness and swelling of the left leg appeared. Homans' sign and Lowenberg's cuff test were positive. Fibrinolysin therapy was started about 40 hours after the first sign of thrombophlebitis and was continued for three days. A moderately severe pyrogenic reaction followed the first infusion; there were no side-effects during the subsequent treatments. Homans' sign became equivocal, pressure sensitivity decreased, and there was marked reduction of edema on the day after the first fibrinolysin infusion. Rapid improvement continued, and resolution was essentially complete on the third day. The patient was then given heparin for several weeks. Six months after discontinuation of heparin and discharge, she was active without any complaints.

Case 8.—A 68-year-old woman underwent resection of a carcinoma of the bladder. Nine days later, she noted swelling and slight pain in the right foot. Four days after the onset of the process, she had 2+ edema of the right leg below the knee and dilated superficial veins of the leg. Homans' sign was negative; Lowenberg's cuff test was weakly positive. Venogram revealed obstruction of the posterior tibial vein. She received two infusions of fibrinolysin, on the fifth and sixth days after the swelling was discovered. She was also treated with heparin and bishydroxycoumarin. Repeat venogram on the seventh day showed no change. However, she improved rapidly, and the extremity was entirely normal three days later.

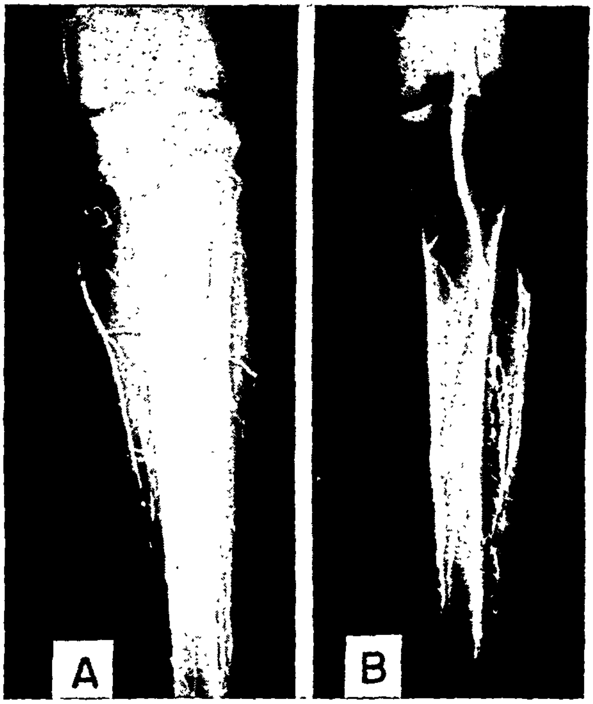

Fig. 2. (case 2).—Venograms of left leg taken, *A*, immediately before and, *B*, six days after beginning of fibrinolysin therapy. Previously occluded deep venous channels are now patent.

Case 9.—A 73-year-old woman with agnogenic myeloid metaplasia was admitted with swelling and pain of the left leg, of about five days' duration, and coldness and pain of the left foot, of one day's duration. The entire left extremity was swollen and tender. The foot was pale and cold; the leg exhibited bluish mottling; skin temperature was increased above the knee; and there was erythema and tenderness over the femoral vein. The left femoral pulse was diminished as compared to the right. The left popliteal and dorsalis pedis pulses were absent. The clinical impression was (1) left femoral thrombophlebitis and (2) arterial occlusion above the knee, due to either thrombosis or intense vasospasm. The patient was given heparin, and fibrinolysin therapy was instituted. She received four infusions of fibrinolysin during the 72 hours after admission, with mild to moderately severe reactions. Penicillin was also administered. On the morning after the first infusion, signs of arterial obstruction were no longer present but evidence of femoral thrombophlebitis and major venous obstruction persisted. Three days later, she was strikingly improved, but some edema of the leg was still present. More gradual improvement continued, bishydroxycoumarin was substituted for heparin therapy, and she was discharged one month later.

Case 10.—A 59-year-old woman had carcinoma of the ovary, with abdominal carcinomatosis, ascites, and moderate edema of both legs. Six hours after abdominal paracentesis, her right leg became painful, cyanotic, and more edematous. On succeeding days, the edema progressed to involve the entire extremity. Five days after the onset of thrombosis, the extremity was still painful, cyanotic, and markedly edematous. Homans' sign and Lowenberg's cuff test were strongly positive. She was given one infusion of fibrinolysin, with a moderately severe reaction. There was no improvement. Her general condition continued to deteriorate rapidly, and she died two days later. Autopsy revealed a thrombus completely occluding the right femoral vein.

Table 3.—*Diagnostic Criteria in Case 11**

		Arterial Pulses, Left Leg				Skin Temperature at Reference Points,† Degrees Centigrade						Relative Available Oxygen Tension of Skin Before and After Breathing 100% Oxygen							
						Left Leg			Right Leg			Left Leg						Right Leg, C	
												A		C		G			
Date and Treatment	Color of Left Leg	Femoral	Popliteal	Anterior Tibial	Dorsalis Pedis	A	C	F	A	C	F	Air	Oxygen	Air	Oxygen	Air	Oxygen	Air	Oxygen
2/21 15 units/kg. of body weight	Cyanosis, ecchymosis	+	—	—	—	28.0	29.0	32.0	30.0	31.8	32.1	16	17	17	22	30	52	170	279
2/22 30 units/kg. of body weight	Increased cyanosis	+	—	—	—	28.0	29.9	31.1	31.4	32.0	31.1								
2/23	Livid	+	—	—	—	27.0	28.8	32.0	30.0	32.0	32.3	17	17	28	28	40	42	60	76
2/24	Livid	+	—	—	—	26.9	30.0	32.0	29.5	30.0	32.1								

* Metastatic renal carcinoma, severe peripheral vascular disease, and thrombosis of left popliteal artery.

† A = dorsum of foot, C = mid-calf, F = mid-thigh, G = patella.

Arterial Thrombosis and Embolism.—Arterial blood flow was restored eight hours after the administration of fibrinolysin in a case of probable popliteal artery thrombosis (case 9). A case of arterial embolism in a patient with advanced vascular disease was treated one day after the acute episode and embolectomy, without success. No favorable response was observed in another patient; the summary of this case follows.

Case 11.—A 53-year-old man with metastatic renal carcinoma, who also suffered from intermittent claudication of three years' duration, developed a series of superficial venous thromboses and an episode of pulmonary embolism and infarction. Anticoagulant therapy was administered. Hepatomegaly was present, with nodular hepatic masses. Needle biopsy of the liver was planned, and for this reason heparin therapy was discontinued. Two days later, pain, cyanosis, and ecchymoses developed in the left foot. Femoral pulse was present, but the popliteal, posterior tibial, and dorsalis pedis pulses could not be felt. Skin temperatures and oxygen tensions were lower than in symmetrical contralateral points. Breathing of pure oxygen resulted in increase of skin oxygen tension in the right leg and in the left thigh, but no changes occurred at points below the left knee. Table 3 presents some of the observations recorded in this patient and is illustrative of the procedures we are now using in suspected arterial occlusion. Fibrinolysin therapy was started about 24 hours after the first clinical signs were observed and was continued for two days. The patient was given heparin. A moderately severe pyrogenic reaction followed the second fibrinolysin infusion. No improvement was noticed, and eventually dry gangrene of the left foot and thrombophlebitis of the deep veins of the right leg developed, in spite of continued heparin therapy. The patient died two weeks later in hepatic coma. Autopsy revealed organized thrombi in the left popliteal artery and right popliteal vein.

Other Indications.—Several cases of edema, presumably secondary to venous or lymphatic obstruction, were treated. Two are of particular interest.

Case 12.—A 60-year-old man with carcinoma of the right tonsil, previously treated with radiation, developed acute swelling of the left side of the head and neck (fig. 3*A*). Palpebral edema prevented opening of the eyelids, and the patient complained of headache. The etiology of this episode was uncertain, but thrombosis of major veins draining this area was suspected. He was given two infusions of fibrinolysin on successive days, with mild side-effects. Penicillin therapy was also initiated, but cultures taken before treatment were later reported to be sterile. Five hours after the first infusion, there was a marked reduction in swelling of the face and the patient could open his eyelids. On the following morning, the head and neck appeared normal except for some redness of the face and slight edema of the mastoid area. During the next two days there was a complete return to normal status (fig. 3*B*).

Case 13.—A 43-year-old woman with recurrent postoperative bilateral adenocarcinoma of the breast was treated with androgens, oophorectomy, radiation, and hypophysectomy. She developed edema of the right shoulder and arm, presumably related to tumor extension. Later, marked edema of the hand appeared (fig. 4*A*). She was comatose, and no subjective information could be obtained. Fibrinolysin therapy was given about three days after the appearance of edema of the hand. Moderate chills and fever developed. Ten hours later, definite reduction of swelling was observed. There was slight oozing from the lesions of the chest wall, starting during the infusion and gradually subsiding. By the following morning, the edema of the right hand and forearm had completely disappeared (fig. 4*B*). No further treatment was given. During the next three days the edema gradually recurred.

Five patients with chronic edema of an extremity, of 3 to 12 months' duration, did not respond to fibrinolysin therapy. Three of these were women with postmastectomy edema of the arm. Two were women with intrapelvic cancer and edema of a lower extremity.

Three instances of skin flap cyanosis, in two patients, were treated. It was postulated that this disorder might be secondary to multiple thrombosis of small vessels in the flap. One patient, treated eight days after the onset of cyanosis, did not respond. The other, treated promptly on each of two occasions, showed rapid improvement both times.

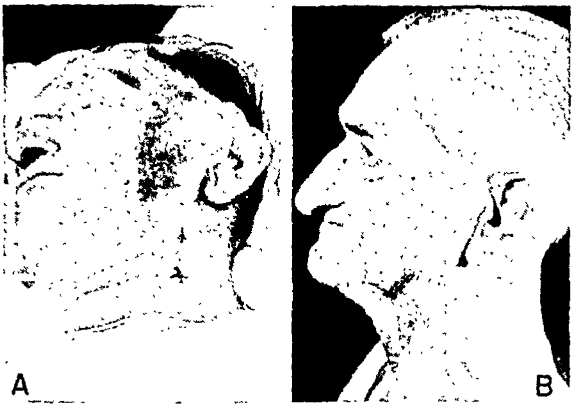

Fig. 3 (case 12).—*A*, before and, *B*, two days after beginning of fibrinolysin therapy. Edema has disappeared.

Case 14.—A 59-year-old man had a large basal cell carcinoma of the right side of the back. A pedicle flap was formed to repair the skin defect to be produced by surgical therapy. A month later a second delay dorsal flap was formed. Cyanosis of the flap developed, possibly due to small thrombi. Fibrinolysin therapy was instituted 24 hours after this occurrence and maintained for five days. Mild pyrogenic reactions were observed on the second and fifth days. There was definite improvement in the color of the flap after one day of treatment, and it was normal on the fifth day. Five days later slight cyanosis was again noticed. Fibrinolysin was administered for two days, without side-effects. By the third day the color of the flap was again normal. Three weeks later, the tumor was excised and skin grafting accomplished. The patient was discharged in good health two months later.

Comment

We have administered a relatively large number of different preparations of fibrinolysin to a relatively small number of patients, with the objective of identifying preparations suitable for clinical use in acutely and seriously ill patients. In most cases, several preparations were given to the same patient in order to compare side-effects more accurately. Several of the preparations we have tested appear satisfactory for general use. Detailed data on the methods of preparation, pharmacology, and clinical, biochemical, and hematological effects of these fibrinolysin preparations will be presented elsewhere.[10]

Our results suggest that fresh thromboses can be beneficially affected by fibrinolysin therapy. Of eight episodes of thrombophlebitis of three days' duration or less, complete resolution within one week was obtained in five and marked improvement in one. The natural history of this disease is quite variable, and our series of treated cases is small. It would be unwise to draw sweeping conclusions from this limited experience. However, the results in these patients parallel our observations in experimental animals and suggest that fibrinolysin may prove to be a useful therapeutic agent in this common and distressing disease. It is improbable that the majority of such seriously ill patients as ours would have had spontaneous resolution of their thrombotic processes in less than a week. In two cases of classic thrombophlebitis (cases 1 and 2) and one case of probable thrombosis complicating infiltrating carcinoma (case 13), the clinical syndrome recurred soon after termination of fibrinolysin therapy. The improvement associated with fibrinolysin therapy cannot, therefore, be ascribed to a coincidental remission of the tendency toward thrombosis in these patients. The venograms shown in figure 2 demonstrate that reopening of thrombosed channels actually occurred. To achieve this by the normal processes of organization and recanalization would require weeks or months.

The rapid subsidence of edema in the patients in cases 12 and 13 was quite striking. We believe that these cases represent silent venous thrombosis, with successful clot lysis by fibrinolysin. They were not included among the cases of thrombophlebitis, however, because of the lack of satisfactory criteria, other than edema, for making such a diagnosis. Similarly, in case 14, it appears reasonable to assume that the skin flap cyanosis was due to multiple small thromboses and that the improvement reflected lysis of these thrombi. However, proof of this hypothesis would have required biopsy of the flap, a procedure not considered desirable by the attending surgeon.

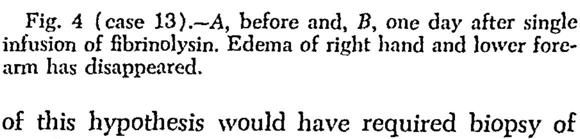

Fig. 4 (case 13).—*A*, before and, *B*, one day after single infusion of fibrinolysin. Edema of right hand and lower forearm has disappeared.

In our experience, fibrinolysin has proved useful only in acute thromboses. However, Cliffton[12] reported beneficial results in certain instances of thrombosis of relatively long standing.

Anticoagulants were deliberately withheld in many of our patients in order to make the test of fibrinolysin therapy as severe as possible. Since these patients had terminal cancer, we felt this was justifiable. However, fibrinolysin does not prevent the development of new thrombi, as demonstrated by the patient in case 3, who developed additional thromboses while undergoing fibrinolysin therapy. We believe, therefore, that the ideal management of acute thromboses should include anticoagulant therapy. In future cases, we plan to administer heparin immediately after the first fibrinolysin infusion and to maintain anticoagulant therapy for the usual period after clinical resolution.

Our experience in this series has impressed us with the difficulties of exact diagnosis of peripheral thrombosis and of evaluation of therapeutic responses. It is well known that thrombosis may be entirely silent. Many of the classic diagnostic criteria of venous thrombosis depend on the presence of an associated inflammatory response. If the inflammatory signs appear late, the age of the thrombotic process may be considerably underestimated. This may perhaps explain our therapeutic failure in a patient such as in case 4, who seemed to have an ideal case and who was treated "early" and aggressively with fibrinolysin and anticoagulants. On the other hand, subsidence of inflammation and restoration of normal circulation through an efficient collateral system can simulate complete reversal of the thrombotic process, when in fact there has been no dissolution of the clot. This was the situation in the patient in case 8, who would have been listed as having a "complete resolution," had not venograms been obtained before and after treatment. In patients with disseminated abdominal and pelvic tumors, such as in case 2, edema of a leg may persist even though the major venous channel has been reopened. Because of these difficulties, we have turned increasingly toward the use of serial venograms in our cases of thrombophlebitis. This technique improves the accuracy of diagnosis and makes the evaluation of therapeutic response much more precise.

Comparable difficulties were encountered in the evaluation of early arterial thrombosis. Coldness of an extremity may be due simply to cutaneous vasoconstriction. Palpation of arterial pulses at the knee and ankle is often difficult, even in patients who do not have arterial obstruction. These difficulties can be surmounted by the use of complex techniques, such as those employed in case 11. Failure of low tissue oxygen tensions to rise during inhalation of pure oxygen demonstrates unequivocally that arterial perfusion of the extremity has been interrupted. Even this technique, however, cannot differentiate between acute thrombosis, embolism, and intense arterial spasm causing almost total reduction of blood flow. In many cases, the exact diagnosis is made retrospectively. Thus, in case 11, a failure, the diagnosis of arterial thrombosis was proved by the development of gangrene and by the autopsy findings. However, in the patient in case 9, with a similar clinical picture and recovery, it cannot be stated with absolute certainty that arterial thrombosis was present. Somewhat similar findings have been reported in cases of acute massive thrombophlebitis.[13] However, the fact that signs of arterial obstruction followed the onset of thrombophlebitis by four days in our patient suggests that this was, in fact, a separate event.

We have not treated patients with coronary thrombosis in this study because we did not wish to submit such seriously ill patients to the possible hazards of side-reactions to fibrinolysin infusion and to the dangers of withholding anticoagulant therapy. However, the most important uses of fibrinolysin may well prove to be in treatment of acute coronary and cerebral thrombosis, where the natural consequences of the thrombotic process are so much more serious than in peripheral thrombophlebitis. A major purpose of the study reported here has been to develop preparations of fibrinolysin which can be administered safely to patients with acute coronary thrombosis. We now have several such preparations and hope to initiate a controlled clinical study of fibrinolysin therapy in coronary and cerebral thrombosis in the near future.

Sherry and Alkjaersig,[9a] Johnson and associates,[14] and Miller [15] demonstrated therapeutic effects in inflammatory and thrombotic conditions with intravenous, intramuscular, and buccal administration of streptokinase only. Presumably, these effects resulted from activation of patients' own profibrinolysin. If therapeutic levels of active fibrinolysin can be obtained consistently by such techniques, they may prove to be simpler methods of therapy than the administration of preformed fibrinolysin. The fact that streptokinase is a very potent antigen and may induce severe sensitivity reactions in man [10] may be a disadvantage of this approach, however.

Summary

Various preparations of the fibrinolytic enzyme, fibrinolysin (plasmin), have been administered to patients with thrombotic disorders. Rapid resolution of signs and symptoms has been observed in patients treated within a few days of the apparent clinical onset of thrombosis. Fibrinolysin therapy was ineffective when started one week or more after the first manifestations of thrombosis.

Many of the fibrinolysin preparations tested were deemed unsatisfactory because of low potency or a high incidence of side-reactions or because they were strongly antigenic and carried the hazard of inducing sensitization to streptococcic products. However, several preparations appear satisfactory for futher clinical trial in acute peripheral thromboses and in coronary and cerebral thrombosis.

Several patients treated only with fibrinolysin suffered recurrence of thrombosis soon after the completion of therapy. We believe, therefore, that fibrinolysin treatment should be supplemented by anticoagulant therapy to prevent such recurrent thromboses.

It must be emphasized that this approach to the therapy of acute thrombosis is still experimental. Much more work needs to be done before fibrinolysin can be recommended for general use.

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Chester Kucinski (University of Buffalo) and Arthur Eisen (University of Pennsylvania) participated in these studies as summer fellows. L. Alicandro, R.N., and A. Higgins, R.N. (research nurses), D. Reddington, B.S., I. Mink, B.S., and R. Shields, B.S. (technicians) provided technical assistance in these studies.

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IRON-DEFICIENCY ANEMIA.—Several factors are thought to contribute to the iron-deficiency anemia of infancy. Included among these are decreased dietary iron, inadequate iron stores at birth, and excessively rapid growth. . . . Of the factors investigated the most frequently found was an abnormal diet. In those cases in which only one cause was found the large majority were due to abnormal diet. Low birth weight was much less frequently the single factor, and low maternal iron stores never acted alone, although in a larger series the latter factor might have been implicated as operating singly. Abnormal weight increment in full-term infants was also only rarely encountered as a cause of iron-deficiency anemia. It appears, therefore, that, given a normal diet, an infant overcomes his relative neonatal iron deficit. However, normal iron stores at birth are not adequate to prevent the development of iron-deficiency anemia in the presence of an abnormal diet.—J. P. Dawson, M.D., and J. F. Desforges, M.D., Dietary and Storage Factors in Iron-Deficiency Anemia of Infancy, *A. M. A. Journal of Diseases of Children*, August, 1958.

SPINAL ANESTHESIA FROM THE SURGEON'S STANDPOINT

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Spinal anesthesia has certain advantages over other types in operations below the level of the diaphragm. It gives a degree of muscular relaxation that cannot be attained in general anesthesia, even if relaxant drugs are used, without undesirable depression of respiratory and circulatory functions. In the author's experience with 5,000 operations with the use of spinal anesthesia there have been no deaths and no instances of permanent motor paralysis. It is assumed that both surgeon and anesthesiologist are on the alert for such possible complications as nervous apprehension, nausea, vomiting, respiratory depression, and cardiovascular disturbance. Postoperative urinary retention necessitated catheterization in approximately 30% of this series; it is doubtful whether this figure differs significantly from that for colonic and anorectal surgery under general anesthesia. The incidence and severity of headache have become negligible since techniques have been improved by using small-gauge lumbar puncture needles, avoiding multiple punctures of the dura, keeping the patient horizontal for at least 24 hours after operation, and making sure of adequate hydration. Two important contraindications are neurological disease and intestinal obstruction. Spinal anesthesia, properly used, has advantages that are especially appreciated by the surgeon operating for colonic and anorectal disease.

I am a representative surgeon who prefers spinal anesthesia for operations below the level of the diaphragm. More specifically, in my own particular field of surgery for colonic and anorectal disease, I believe that spinal anesthesia is the anesthesia of choice.

For anorectal surgery, complete muscular relaxation of the sphincter ani, levator ani, coccygeus, and gluteus muscles is essential for adequate exposure and satisfactory definitive procedure. It is desirable to have the patient in the prone position. When this position is used, it is important to avoid respiratory and circulatory depression. For fulfillment of these conditions low spinal saddle-block anesthesia is unquestionably the anesthesia of choice.

For abdominal surgery, two fundamental requirements are adequate muscular relaxation of the abdominal wall and a quiet, contracted intestine. Again, spinal anesthesia is unexcelled for producing these two conditions. To attain comparable results with general anesthesia requires a depth of anesthesia which produces both a central and a peripheral depression of respiratory ventilation and of circulation.

With the recent introduction of peripheral muscle relaxants, it is now possible to produce more adequate muscle relaxation with higher levels of anesthesia. Today, a well-administered general anesthesia, combined with judicious use of muscle relaxant drugs, more nearly approaches, but does not fully achieve, the distinctive advantages of spinal anesthesia.

As Dripps and Vandam[1] said, "Spinal anesthesia . . . is relatively free from the criticism of toxicity and the mortality associated with general anesthesia . . . the great hazard of spinal anesthesia in the minds of both physician and patient is the possibility of persistent paralysis after the anesthetic effects should have disappeared." In all truth, such hazard does exist, as demonstrated by a number of reported cases in the medical literature.

In 1950, Kennedy and co-workers[2] published a vindictive attack on spinal anesthesia, with a report of 11 tragic examples of severe neurological complications following spinal anesthesia. It was their opinion that paralysis below the waist is too large a price for the patient to pay in order that the surgeon should have a fine relaxed field of operation. There can be no argument with this opinion, provided that the incidence and severity of such complications are sufficient to outweigh the advantages of this form of anesthesia. There is abundant evidence that this is not the case.

Review of the Literature

In the table is listed the reported experience of seven outstanding authorities, supplemented by an additional 5,000 consecutive private patients operated on by myself with use of spinal anesthesia. These are series of consecutive cases numbering from 2,300 to 12,000 in which specific study of the incidence of neurological complications was carried out. Particularly noteworthy is the excellent report by Dripps and Vandam[1] from the University of

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Read in the Symposium and Panel Discussion on Spinal Anesthesia before the Joint Meeting of the Section on Anesthesiology and the Section on Surgery, General and Abdominal, at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

Pennsylvania Hospital. This was a comprehensive prearranged plan of study with long-term follow-up of all patients who received spinal anesthesia over a period of four years. In the opinion of these authors this intensified search for suspicious symptoms in all probability increased the number of symptoms and invited extraneous complaints. As an example, they give this reply received from one patient: "After getting your letter I seem to think I am having after-effects."

In these 65,677 cases, there was not a single instance of permanent motor paralysis. Also recorded in the table are four deaths. The two reported by Jackson and Petsch [3] occurred in 1930, in their early experience with spinal anesthesia. The two reported by Sadove and Levin [4] occurred in patients who were moribund before induction of anesthesia and who died of cardiac arrest. Sadove and Levin believe that possibly these patients should have had only refrigeration anesthesia.

Neurological complications reported by these workers were as follows: Transient paresthesias of the lower extremities, most commonly in the skin area supplied by the lateral femoral cutaneous nerves to the thighs, occurred in 93 patients, or 1 in 700 (0.14%). Transient motor weakness in the lower extremities was reported in seven cases, or 1 in 9,000 (0.01%). Transient abducens nerve palsy occurred in eight patients, or 1 in 8,000 (0.012%). Transient backache and muscle spasm occurred in four patients (0.006%). While these are included as possible neurological complications, probably they were skeletal in origin. Mild transient meningismus also was reported in four cases. There was one reported case of aseptic benign meningitis, with complete recovery.

In one patient neurological signs developed, subsequent to spinal anesthesia, which proved to be due to a meningioma of the spinal cord. Cure was effected by definitive surgery for the meningioma. In one case of persistent paralysis of the left peroneal nerve, preexisting symptoms of such paralysis had been present and this was not considered to be a neurological complication of spinal anesthesia. The majority of these reports contained no data on headache after spinal anesthesia. This will be discussed with other postoperative complications.

Complications During Spinal Anesthesia

Both the anesthesiologist and the surgeon must be cognizant of possible untoward reactions during and after spinal anesthesia, so that they may intelligently employ proper procedures of prevention and treatment for such reactions. Complications during anesthesia can include nervous apprehension, nausea and vomiting, respiratory depression, circulatory depression, and cardiac arrest.

Nervous Apprehension.—The patient's apprehension can be minimized by adequate discussion of the procedure with him in advance by both the surgeon and the anesthesiologist. Appropriate sedation should be used, along with "supplemental vocal anesthesia" by the anesthesiologist during the operation. The latter in no way alludes to the utilization of hypnosis.

Nausea and Vomiting.—When nausea and vomiting occur, they are usually proportional to the degree of nervous apprehension on the part of the patient. This may be controlled promptly by minimal amounts of intravenously given meperidine (Demerol) hydrochloride or thiopental (Pentothal) sodium.

Respiratory Depression.—The degree of respiratory depression present is directly related to the level of anesthesia; this is true particularly in paralysis of the intercostal muscles. It may also be caused by injudicious preoperative sedation. When such depression occurs, artificial respiratory exchange and oxygen must be utilized to prevent anoxia and circulatory collapse.

*Review of Reported Experience with Spinal Anesthesia**

Author	Spinal Anesthesias, No.	Deaths, No.
Stein, J. J., and Tovell, R. M.: Am. J. Surg. 30:282, 1935	10,000	0
Hebert, C. L., and others: J. A. M. A. 142:551-557 (Feb. 25) 1950	5,763	0
Bonica, J. J.: Management of Pain, Philadelphia, Lea & Febiger, 1953	12,000	0
Dripps and Vandam[1]	10,098	0
Grady, R. W., and others· Anesthesiology 15:310, 1954	2,300	0
Jackson and Petsch[3]	10,350	2
Sadove and Levin[4]	10,166	2
Present study	5,000	0
Total	65,677	4

* No instance of permanent motor paralysis was reported by these workers.

Circulatory Depression.—In my experience with saddle-block spinal anesthesia for anorectal surgery, rarely does any significant amount of hypotension occur. The average drop in systolic pressure is less than 10 mm. Hg.

In abdominal operations, with the necessity of a higher level of anesthesia, there may occur a serious drop in blood pressure unless the anesthesiologist takes appropriate control measures. In my experience in working with highly qualified anesthesiologists, blood pressure seldom drops more than 20 mm. Hg and, when it does, rarely stays below that level for as long as five minutes. In every abdominal operation continuous intravenous infusion is maintained for fluid and blood replacement and for any indicated intravenous medication.

Cardiac Arrest.—In the collected series of 65,677 spinal anesthesias there were three reported cases of cardiac arrest, with one recovery. Two of these three patients were moribund before induction of anesthesia. In my experience, cardiac arrest has not yet occurred.

Complications After Spinal Anesthesia

It is axiomatic that the responsibility of the anesthesiologist and the surgeon for the welfare of the patient does not end when the patient is wheeled from the operating room. Appropriate measures need to be taken for the prevention or treatment of four principal postanesthesia complications: hypotension, nausea and vomiting, urinary retention, and headache.

Hypotension.—Any fall in blood pressure produced by spinal anesthesia may recur as long as the anesthesia is effective, unless appropriate control measures are maintained until the effects of the anesthesia have terminated. It is also noteworthy that any sudden movement of the patient during transfer from operating table to bed or Guerney may initiate a significant drop in blood pressure.

Nausea and Vomiting.—In my experience the incidence of nausea and vomiting as a postoperative complication is no greater with spinal anesthesia than with general anesthesia for comparable surgical procedures.

Urinary Retention.—It is generally believed that the incidence of urinary retention in the immediate postoperative period is greater after spinal anesthesia than after general anesthesia. I have never been convinced that this is so, although I can offer no statistical data to refute this belief. Catheterization has been done in approximately 30% of my patients who have had anorectal surgery under spinal anesthesia. This incidence of the use of catheterization in good part reflects an unwillingness to permit overdistention of the bladder in the immediate postoperative period. In my experience there has been no instance of persistent neurogenic dysfunction of the bladder after spinal anesthesia.

Headache.—The incidence of headache after spinal anesthesia is variously reported in the literature as from 1.5 to more than 30%. It is generally agreed that such headache is directly related to the leakage of cerebrospinal fluid at the site of needle puncture of the dura. By employment of a few simple preventive measures, I have found that the incidence and the severity of headache after spinal anesthesia have become negligible. These procedures include the use of a small-gauge lumbar puncture needle, avoidance of multiple punctures of the dura, horizontal position of the patient for at least 24 hours after operation, and adequate hydration.

With the use of these simple preventive measures, only occasionally has it been found necessary to prescribe any specific treatment for headache after spinal anesthesia. In an occasional instance persistent headache, not promptly relieved by placement in the horizontal position, has occurred in tense individuals who have had prolonged nausea and retching after operation. Adequate hydration by intravenous infusion plus medication with tranquilizers to ameliorate nausea and tension has given prompt relief.

Contraindications

It is advisable to avoid the use of spinal anesthesia in patients with any history or signs of neurological disorder or injury or disease of the spinal column. In many instances this is a precautionary measure, to avoid any possible or presumed aggravation of such disorder.

I do not employ spinal anesthesia for abdominal operations in the presence of intestinal obstruction, because of the danger of precipitating intestinal perforation and because of the possibility of regurgitation and aspiration.

When abdominal surgery is considered imperative in a patient who is comatose or in severe shock, I believe that both spinal and general anesthesia are contraindicated and prefer local procaine infiltration or block anesthesia.

I do not consider preexisting cardiovascular disease a contraindication to the use of spinal anesthesia. My experience supports the published conclusion of Lorhan and Merriam[5] that spinal anesthesia is excellent for elderly and poor-risk patients, including those with advanced cardiac and hypertensive disease.

Conclusions

In every patient the selection of the type of anesthesia to be employed should be determined, first, on the basis of safety for the patient and, second, on the basis of relative advantage to the surgeon. In my experience, such selection has resulted in the use of spinal anesthesia for the great majority of operations for colonic and anorectal disease.

490 Post. St. (2).

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PHARMACOLOGY OF COMPOUNDS USED TO PRODUCE SPINAL ANESTHESIA

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The several compounds used to produce the extensive nerve block called spinal anesthesia are all members of a group classed as "local anesthetics." They have many characteristics in common, and they are thought to produce their effects in a common manner. The quantitative differences among them result primarily from the influence of the differing chemical structures on such factors as absorption, penetration of membranes, metabolic reactions, and excretion mechanisms. These individual factors achieve more or less importance as we consider the compounds in the special case of spinal anesthesia. This technique was first used in 1899, but cocaine was the drug employed and a number of deaths resulted.

Characteristics of Local Anesthetics

The figure shows the names and structures of five representative compounds which have been more recently used in this field. These are procaine hydrochloride, tetracaine hydrochloride, piperocaine hydrochloride, dibucaine hydrochloride, and lidocaine hydrochloride. The first three of these compounds are tertiary amino esters of aromatic acids, and the last two are amides rather than esters, with the carbamino group turned around in the lidocaine molecule—a rearrangement which in this case can be utilized to achieve excellent local anesthetic activity without the liability of sensitivity reactions from the ester type of compounds.

The characteristic action shared by these compounds is their ability to block nerve conduction when they are applied locally to nerve tissue in sufficient concentration. They act on any part of the nervous system and on every type of nerve fiber from the motor cortex to the peripheral afferent nerve endings. In the spinal cord, a functional transection is provided. The reversible nature of this action and the complete recovery of nerve function allow the production of discrete local paralysis of sensory and motor nerves.

The features desirable in a good local anesthetic for spinal use are summarized as follows: (1) depression of sensory nerve function; (2) reversible action, with no damage to nerve tissue; (3) selective action on nerve tissue; (4) low systemic toxicity in concentrations used clinically; (5) no irritation or pain at injection site; (6) rapid onset of action; (7) optimum duration of action; (8) solubility in aqueous solutions at usual pH; (9) stability during sterilization and in solution; and (10) compatibility with vasoconstrictors. The five compounds being considered are nonirritating and do not injure nerves as they produce anesthesia. In producing spinal anesthesia, such small amounts are used, compared to the amounts used for infiltration, that systemic toxicities are probably not generally a major factor. However, one would choose a compound with the greatest margin of safety if the desirable activity is still equally present, since it is difficult to confine the drug to one spot and the spread may well incapacitate vital processes. The local anesthetics differ from some other groups of compounds, such as barbiturates, in that the anesthetic potencies and toxicities are not strictly proportional. This is perhaps due to the relatively greater nonspecificity of the local anesthetics' action in producing anesthesia and the dependence of their toxicity potentials on specific structural features. Time and lack of detailed knowledge does not permit a much greater exploration of this point.

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The duration of the anesthetic action is a matter of greatest importance in spinal anesthesia. The duration is often shorter than is desired. One can increase the time of effect by increasing the dose, but to do this is to invite greater spreading, greater

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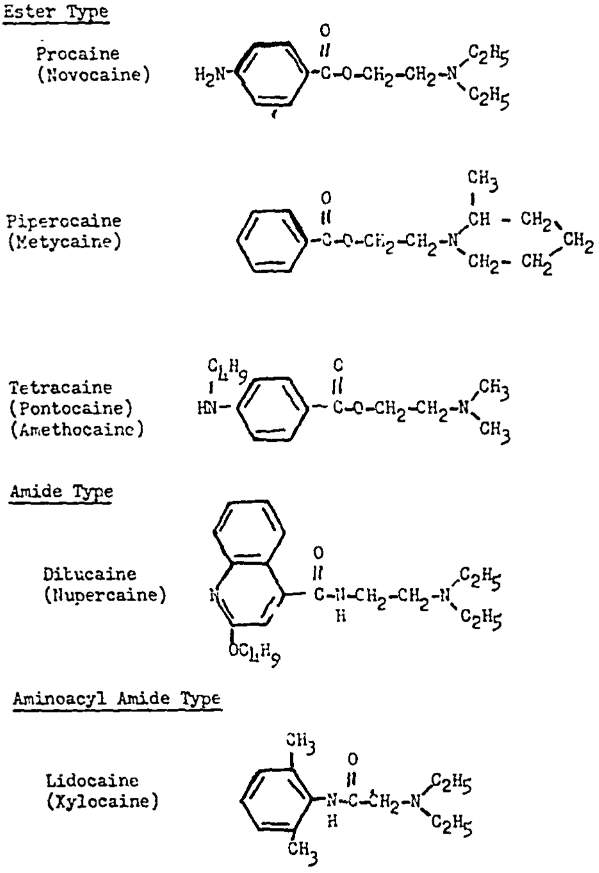
absorption, and greater potential toxicity, with an attending greater decrease in blood pressure. Other means of increasing the duration are (1) use of another drug, (2) use of continuous spinal anesthesia, or (3) use of vasoconstrictors. With the continuous technique, the uncertainty of duration can be overcome, the control can be better for high sensory blocks, and a shorter acting drug can be used. Vasoconstrictors work because the anesthetics are not destroyed in the subarachnoid space. Even procaine is not hydrolized. The anesthetic compounds are slowly absorbed systemically and are inactivated. It is thought that they leave the subarachnoid space mostly by venous drainage. Thus, the vasoconstrictors allow up to 100% greater duration of procaine action due to decreased rate of absorption. Epinephrine hydrochloride (0.2 to 0.5 mg.), levarterenol bitartrate (0.5 mg.), and phenylephrine hydrochloride (3 to 10 mg.) have been used. No systemic and no adverse effects on neural tissues are known to occur. The time required for onset of anesthesia would seem to be a relatively minor point for comparison in spinal anesthesia.



Structures of five representative compounds used in spinal anesthesia.

The physical properties of these compounds meet the ideal requirements fairly well, otherwise they would not have been used in this field. They are more soluble in aqueous solvents in acid solutions (lower than pH 7.0) and more soluble in lipids at a slightly alkaline pH; both of these properties are desirable in getting the molecules past an aqueous phase and into a lipid one where they apparently do their work, even though in an extremely local sense they may ionize again within the membrane. If, for some reason, the tissue pH is acid, the free base will not form and the attempt at anesthesia will fail. These relationships are illustrated in the following two equations: (1) $R{:}N \cdot HCl + NaHCO_3 \longrightarrow R{:}N + NaCl + H_2CO_3$; (2) $R{:}N + HOH \rightleftarrows R{:}NH^+ + OH^-$. The most stable compound of the five we are considering seems to be lidocaine, followed by tetracaine, and the other three in a third group. They can all be boiled and autoclaved at 120 C.

It has been noted that the systemic toxicity from these compounds used in spinal anesthesia is generally slight. Nevertheless, there are occasional reports of acute toxic reactions resulting in death from seemingly small amounts of procaine (100 mg.) and tetracaine (10 mg.). Such sensitivity reactions may be eczematous (asthma) or fatal anaphylactic responses; they seem to occur primarily with the procaine or ester type of compound. For want of greater knowledge about mechanisms, not much more can be said about these cases other than the fairly meaningless statements that either they represent an early sigma in the dose-response curve or some special feature of the patient's pathological state has led to the greater sensitivity.

Mechanisms of Action

Pertinent data on these compounds are presented in the table. However, a few other factors deserve brief mention. The volume of solution has a great influence on the level of anesthesia. The area is greater with greater volume. Generally, 1 to 10 ml. is used, depending on the level desired and the extent of control sought through volume. The total amount must be enough to produce nerve block and the desired duration. More drug covers more area and provides longer anesthesia. Operations on the lower part of the abdomen require only a small amount, because little upward diffusion is neces-

Data on Action of Five Local Anesthetics

	Usual Concentrations, %	Volume of Solution, Ml.	Range or Maximum Dose, Mg.	Relative Promptness	Duration, Hr.
Procaine	3.0-5.0	2-5	50-200	2	1-1½
Tetracaine	0.3-0.5	3-5	10-15	2	3-5
Piperocaine	3.0-4.0	3-5	50-200	2	2+
Dibucaine	0.05-0.25	...	3-13	3	4-6*
Lidocaine	2.0-4.0	4	150	1	2½-3

* Suggested by Dr S. C. Cullen as typical.

sary. As the desired area increases, the total dose must be raised. The degree of increase of dose depends on use of this factor as a control. A slow speed of injection usually allows for a slow diffusion, but increased speed gives greater spread. Barbotage may be used if it is desired to achieve thorough mixing. By changing the composition with such a substance as glucose, the specific gravity can be varied. "Hyperbaric" solutions are those with greater specific gravity than spinal fluid. "Hypobaric" solutions are made by putting drugs in hypotonic solutions. Many anesthetists control the direction of flow both by position of the patient and by the specific gravity.

Let us consider next the mechanism by which these compounds produce anesthesia. I have already stated that these compounds are most stable in their salt forms, that is, in slightly acid solution. However, in the slightly alkaline body fluids, the free base is liberated. This form of the compound is more freely soluble in the lipoid nerve structures and apparently is easily transported to the site where it does its work of depressing sensory nerve perception.

In a physiological sense we can stop there with this explanation of the mechanism, but we would be much more sophisticated if we could say more about this action, as it involves the so-called levels of integration lower than the tissue—the nerve in this case. In other words, what are these compounds doing at the cellular level or at the various subcellular levels—the polymolecular systems, the molecular systems, the molecules, and other systems?

Several so-called theories of action have been proposed, and most of them seem rather incomplete when they are examined critically. The degree of surface tension alteration at oil-water interfaces has been shown to parallel potency. This surface tension change produces decreased permeability of cell membranes, so that there would be a decrease in phasic shifts associated with nerve conduction. Acetylcholine production may be depressed. We have in some way a "stabilization" of the membranes so that the necessary depolarization cannot occur. Pores are closed by the physical presence of these local anesthetic drug molecules. These and other statements have been made to explain the phenomenon. When we look carefully among these phrases, each of which has satisfied some group of experimenters, depending on the limits of their interests, we can still ask the simple questions: "How do the local anesthetics work?" "What are the details of the transmission of the nerve impulse?" Actually, the local anesthetics serve as excellent tools in this important field of research. These compounds do block without depolarizing nerves, therefore are said to "stabilize" conditions in membranes which are normally labile enough to permit phasic shift in potential during impulse conduction. Generally, sensory fibers are blocked first and a separation can be made. There is an order generally to the disappearance of perceptions—pain first, then cold, warmth, touch, and deep pressure, but there is great individual variation. Fiber size seems to be a major determining factor here. Return of blocks to normal occurs in reverse order.

Comment

The chief pharmacological and toxicological effects of local anesthetics are summarized as follows: There is nerve conduction block, and respiration may be depressed. Local anesthetics are central nervous system stimulants; restlessness, tremor, and chronic convulsions may occur. Depression follows with respiratory failure, so that artificial respiration and drug stimulants may be needed. Barbiturates prophylactically are useful. A curare-like action is produced at the myoneural junction. Local anesthetics seem to diminish acetylcholine production.

Cardiovascular actions are as follows: With high systemic concentrations, quinidine-like changes occur in excitability, conduction, and force of contraction. There is arteriolar dilatation. Cardiac arrest may take place either by action on the pacemaker or by sudden onset of ventricular fibrillation, and cardiovascular collapse follows. In regard to circulation, blood pressure may drop in an unpredictable fashion but roughly is proportional to the area of anesthesia. The mechanism of action is disputed: There is paralysis of sympathetic fibers in anterior nerve roots and block of impulses to arterioles and veins; this arteriolar effect leads to a decrease in peripheral resistance and in systolic and diastolic pressures; and the venous effect leads to a postarteriolar pooling of blood, decrease in venous return, and reduced cardiac output. Extreme muscular relaxation of spinal anesthesia contributes to the decreased venous return. Anoxia would further contribute to circulatory inadequacy; final circulatory status depends on balance between these factors.

The maximal reflex vasoconstriction in unanesthetized areas occurring as a normal part of spinal anesthesia renders patients especially susceptible to shock and hemorrhage. Thus, tissues should be handled gently and patients in shock should not have spinal anesthesia.

Fall in blood pressure would be more serious if other drugs did not help. Ephedrine hydrochloride, 50 to 100 mg. intramuscularly, given prior to the spinal anesthetic, may be useful. Other compounds used include phenylephrine, hydroxyamphetamine hydrobromide, and methoxamine hydrochloride.

There is a spasmolytic action on smooth muscles. Also, neurological complications may occur. Apparently, it is difficult to distinguish the role of faulty technique. The incidence rate is about 1 to 1,000. The most common problem is the cauda equina syndrome. The symptoms are loss of control of sphincters of bladder and intestine and sensory and motor difficulties in the lower extremities. There is slow or no recovery. Less frequent complications are neuritis (radiculitis), myelitis, meningomyelitis, and myeloradiculitis. Many times these are only aggravated and not initiated. Other complications, such as focal cerebral lesions and cerebral nerve palsies, may be secondary to anoxia.

The evaluation of the technique of spinal anesthesia and the relative merits of single dose and continuous procedures are definitely in the sphere of the anesthetists and the surgeons who follow this program.

SPINAL ANESTHESIA, ARACHNOIDITIS, AND PARAPLEGIA

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The effects of various detergents left as contaminants in the needles and syringes used for spinal anesthesia were studied in experiments with 18 monkeys. There were three test groups: a series of five monkeys in which a variety of detergents were used as contaminants, a series of five monkeys in which the contaminant was a 1 % solution of tribasic sodium phosphate (TSP), and a series of four monkeys in which the contaminant was 5% TSP. There was a contrast group consisting of four monkeys who were observed for five months or more after spinal anesthesia had been induced with due precautions against contamination with detergents. In this group no clinical, gross, or microscopic evidence of neurological damage was obtained. In the test groups only two monkeys escaped arachnoiditis; all the others developed it in varying degrees of severity, and one became clinically paraplegic. Detergents are not the only contaminants to be concerned about, but it is clear that extreme care should be used in all phases of the induction of spinal anesthesia.

Arachnoiditis and paraplegia after spinal anesthesia have recently been ascribed to detergent cleanser residues in the inadequately rinsed needles and syringes used for administration of spinal anesthesia.[1] It has been confirmed that this view has been based on strong circumstantial evidence without experimental verification.[2] Preliminary experimental work in monkeys, in support of the circumstantial evidence, was reported in brief from this department in 1957.[3] The present report is concerned with the continuation and expansion of the preliminary study.

Methods

The animals used were young adult male monkeys (the macaque) weighing between 3 and 10 lb. (1.3 and 4.5 kg.). The animals were put to sleep with pentobarbital (Nembutal), injected intraperitoneally; they then were subjected to spinal anesthesia with use of 1% tetracaine hydrochloride and 10% dextrose solution in varying hyperbaric combinations ranging from 2 to 4 mg. of tetracaine and 20 to 80 mg. of dextrose. The dose of tetracaine used was 2 mg. in all monkeys except two of the larger animals. Low lumbar puncture was performed with a 22-gauge needle. Spinal anesthesia was produced to various thoracic sensory levels.

The technique used for administration of spinal anesthetic drugs in the monkeys was as exactly comparable to that used in human patients as possible. In regard to the equipment used, in the control group of animals the syringes and needles used had been prepared for patients and in the experimental animals the syringes and needles had been washed in detergent solutions and then autoclaved without rinsing.

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Read in the Symposium and Panel Discussion on Spinal Anesthesia before the Joint Meeting of the Section on Anesthesiology and the Section on Surgery, General and Abdominal, at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

In the exploratory preliminary experimental group, as previously reported,[3] various detergents commonly used in hospitals for the cleansing of needles and syringes were used in varied combinations and concentrations. Two of the five monkeys in this group received single contaminated injections, one received two, one received three, and one received four.

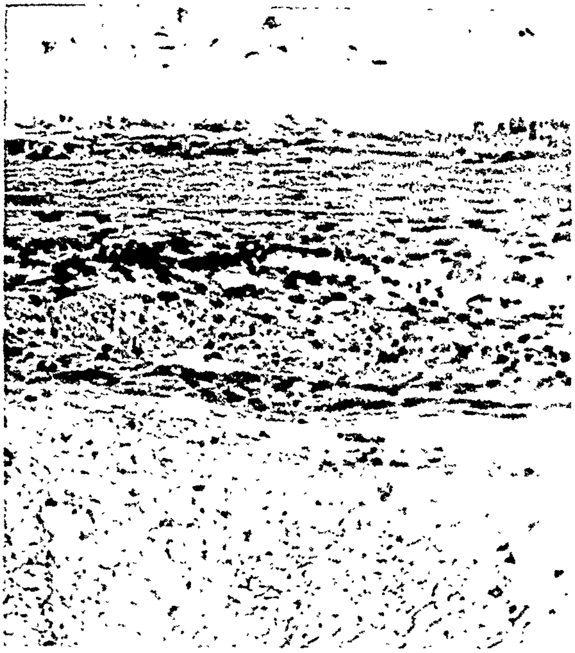

Fig. 1.—Marked inflammatory reaction in severe arachnoiditis in monkey. Note adhesion between pia and arachnoid (× 250).

In the present experimental group, tribasic sodium phosphate (TSP), commonly found in commercial detergent mixtures and also used by itself for similar purposes, was the only contaminant introduced (in 1 and 5% concentrations). Each animal in this group received just one injection.

At the conclusion of the observation periods, the animals were again put to sleep with pentobarbital injected intraperitoneally and the spinal cords, with intact meninges, were removed for study.

Results

Control Series.—Four animals were observed for five months and three for nine months after the induction of spinal anesthesia. No clinical evidence of neurological damage was noted, nor was gross evidence of neuropathology seen at sacrifice. Microscopic studies revealed no chronic meningeal reaction.

Preliminary Experimental Group.—Five animals in the preliminary experimental series were observed for 6 to 14 months after the initial injection. One monkey (no. 4) was observed to be clinically paraplegic four months after its first anesthesia, or two months after its second anesthesia. The onset of paraplegia was clinically abrupt, without detectable premonitory symptoms. Six months after the onset of this animal's gross hind-limb paralysis, the beginning of clinical improvement was apparent. This improvement continued over a three-month period, with slight weakness of the lower extremities remaining as the only evident residual at the time of sacrifice. The other four monkeys remained clinically normal.

Study of the spinal cords and their investments revealed arachnoiditis in all. The pathological changes were graded as "severe" in one monkey, "moderate" in two, and "mild" in the remaining two. The pathology, summarized, was as follows:

Severe Changes: Marked inflammatory reaction of subarachnoid space, with practically solid adhesion between pia and arachnoid, was observed in one monkey (no. 4), as illustrated in figure 1. There was marked thickening of the walls of blood vessels, producing severe degenerative changes in nerve fibers associated with thickening about the trunks and binding of the nerve roots together (fig. 2), and lymphocytic infiltration of blood vessel walls. Proliferative changes in dorsal root ganglions, with chromatolytic changes in ganglion cells were also seen. There was loss of myelin in the peripheral

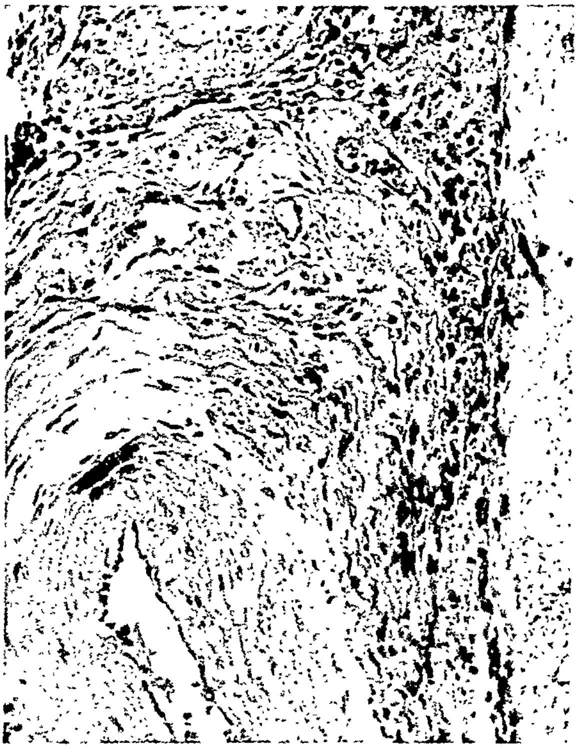

Fig. 2.—Severe degenerative changes in nerve fibers, with thickening about trunks and binding of roots, in monkey with experimentally produced arachnoiditis (× 250).

tissues of cord, especially of the posterior and lateral funiculi (fig. 3). Pathology was graded as 4+. The animal had received two injections.

Moderate Changes: One monkey (no. 5) had irregular thickening of the arachnoid and pia-arachnoid adhesions. Pathology was graded as 2+. The animal had received one injection.

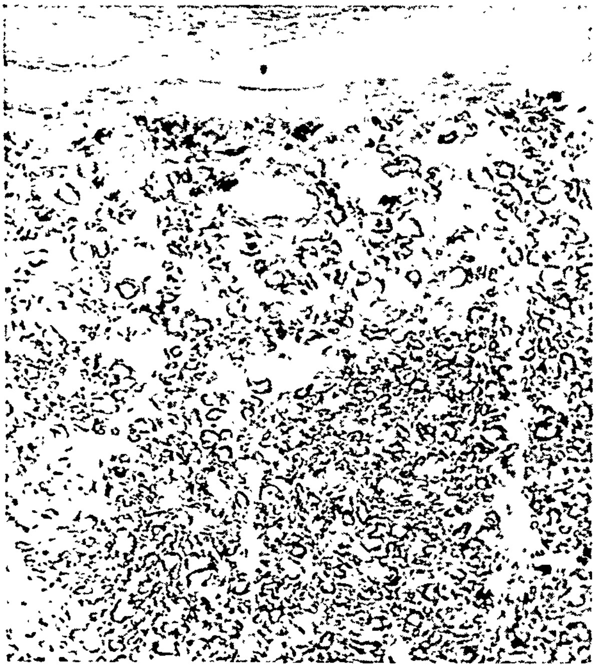

Fig. 3.—Loss of myelin in peripheral tissues of cord (× 250).

. In another animal (no. 2) with irregular thickening of arachnoid, the adhesions were all of meninges. The pathology was graded as 2+. This animal had received four injections.

Mild Changes: One animal (no. 8) showed a slight thickening of pia-arachnoid, with adhesions of nerve roots. The pathology was graded as 1+. The animal had received one injection. Another monkey (no. 1) had irregular thickening of arachnoid and nerve root demyelinization. Pathology was graded as 1+. The animal had received three injections.

No correlation could be made in this group of the extent or degree of pathology, the number of injections which each animal received, and the particular detergent used.

Present Experimental Group.—In four animals in the present experimental series spinal anesthesia was induced with use of needles and syringes contaminated with a 5% TSP solution. In two of these, sacrificed three and seven months after injection, respectively, the appearance of the spinal cords and meninges did not differ from that in the control animals. In a third animal, sacrificed three months after injection, slight hind-leg weakness was noted at the time of sacrifice. Gross observation of the meninges revealed a small (2-by-3-mm.) cyst of the dura at the site of lumbar puncture. Microscopic examination of the cord and meninges revealed minimal pia-arachnoid thickening, with some adhesion formation. In the fourth animal in this group, sacrificed three months after injection, no clinical evidence of neuropathology was noted. Examination of the cord and meninges revealed moderately severe arachnoiditis (3+), with adhesions between nerve roots, vacuolization of nerve roots (fig. 4), and marked cellular reaction in the meninges.

Five animals in the present experimental group were given an injection with needles and syringes contaminated with a 1% TSP solution. Two of these were sacrificed three months after injection, one five months after injection, and two eight months after injection. The appearance of the spinal cords and meninges of these animals did not differ from that of the control animals.

Comment

We know that serious neurological complications of spinal anesthesia were observed prior to the development and use of detergent cleansing solutions.[4] We also know that valid comparison of the incidence of such complications in the past decade with the incidence in more distant past cannot be made, particularly since incidence per se, unrelated to anesthesia, is so indefinite. However, it is difficult for us to believe that improved publicity is the only real basis for the apparent increased incidence of complications as reported in the literature, especially since this apparent increase so closely parallels the widespread use of detergents.

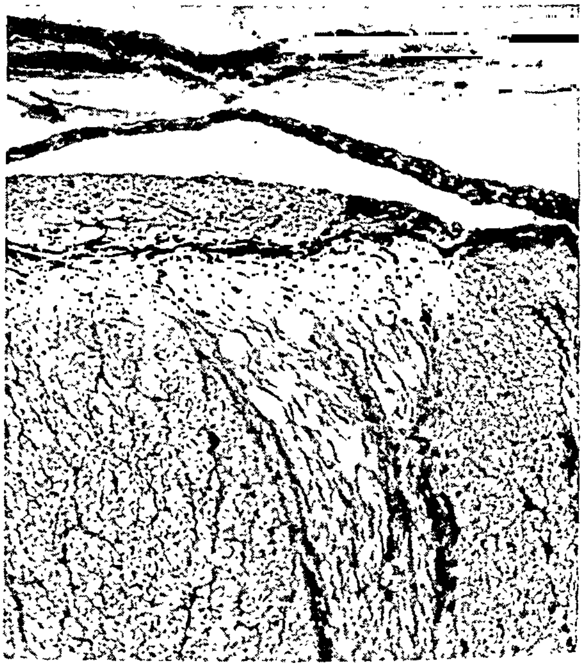

Fig. 4.—Vacuolization of nerve roots in monkey with moderately severe arachnoiditis (× 125).

The great number of uncomplicated spinal anesthesias which have been recorded through the years must be regarded as attesting to the relative safety of the anesthetic drugs themselves as they are generally used in modern practice. Therefore, clinical reports of neurological complications implicating contaminants cannot be ignored.

This study should not be construed as *suggesting* that detergent contaminants are the only contaminants with which one need be concerned in the administration of spinal anesthesia. Many histotoxic chemicals, including antiseptics, can undoubtedly produce comparable pathology.[5] Since detergents resist rinsing, extra diligence must be applied to their removal from syringes and needles. Since alcohol is often the solvent for antiseptic solutions used for skin preparation, care must be taken to avoid contamination of gloves, needles, syringes, and ampuls by such solutions. The dangers of "wet" (i.e., immersion) sterilization with alcohol or other antiseptic solutions of ampuls of drugs used for spinal anesthesia have been well documented.

Although chemical contamination no doubt does not represent the final explanation of the problem, it is a controllable aspect of it. Still remaining to be explained are the facts that arachnoiditis and paraplegia have been found in patients who have never received any type of anesthetic drug, as well as in patients who have been under only general anesthesia.

Summary and Conclusions

Spinal anesthesia was induced in a series of nine monkeys with needles and syringes which had been washed in strong detergent solutions and then autoclaved without rinsing. Seven of the animals were shown to have arachnoiditis when they were sacrificed 3 to 14 months after injection. In two of these the arachnoiditis was severe, with one animal clinically paraplegic.

Inadequate rinsing of hurriedly prepared detergent solutions, which can so readily be made far stronger than necessary, has been postulated as a hospital situation which can result in detergent contamination of solutions used for spinal anesthesia. Beginning with the care and cleansing of needles and syringes, extreme care must be observed in all phases of the induction of spinal anesthesia in order to avoid introducing potentially histotoxic substances into patients.

1200 N. State St. (33) (Dr. Denson).

We acknowledge with gratitude the contributions of Drs. Cyril B. Courville, neuropathology consultant, and John S. Marsh and Allan M. Warner, neurosurgery consultants.

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EFFECT OF ALTITUDE ON ASTHMA.—Patients with asthma may fly, preferably in pressurized planes, using the criteria with which the examining physician is best acquainted. Chronic bronchitis, asthmatic bronchitis, and bronchiectasis, unless severe, do not bar flying but moderate pulmonary emphysema might do so, particularly in the presence of large blebs. Patients who have dyspnea at rest on the ground will probably not find their symptoms aggravated at altitudes in pressured aircraft. Asthmatic patients sensitive to pollens may find some relief even though flying during their particular pollen season, but should not fly during an acute asthmatic attack. Vital capacity, in itself, should probably be above 50 per cent of the calculated value. While oxygen and various types of bronchodilators could be made available to passengers, the particular medication, as prescribed by a physician and with which the patient is familiar, is to be preferred. Prophylactic treatment prior to flight may help prevent attacks. Hyperventilation particularly during an initial trip by air, must be distinguished from asthma and this is at times quite difficult to do. Cyanosis, if present, without further consideration is sufficient in itself to keep a patient out of the air.—S. W. Simon, M.D., The Effect of Altitude on Asthma, *The Journal of Aviation Medicine,* June, 1958.

IS HEAT STERILIZATION OF LOCAL ANESTHETIC DRUGS A NECESSITY?

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Heat sterilization of all local anesthetic drugs and equipment is mandatory but is not being generally practiced. A survey of the techniques observed in using local anesthetic drugs showed that only 33 out of 101 hospitals were autoclaving the solutions before use. The remaining 68 hospitals depended on cold sterilization, the immersion of the ampul, vial, or bottle in a germicidal solution which acts upon the outside but not on the contents. Experience with 17,368 regional block procedures over a 54-month period has led the authors to conclude that a careful technique which includes the autoclaving of the anesthetic in its container is mandatory. The procedure here described is based on the demonstration that the local anesthetics most commonly used can be autoclaved for 30 minutes at 255 to 260 F. and 18 to 20 lb. of pressure (124 to 127 C and 1.22 to 1.36 atmospheres above ambient pressure) without significant loss of potency. This reduces the danger of bacterial contamination and simplifies both the preparation of regional block trays and the execution of regional block anesthesia.

The assurance that a local anesthetic solution as well as the equipment employed for its injection is free from contamination prior to performance of a regional block procedure has always been a concern to the physician using these techniques. Heat sterilization of the equipment is now a standard procedure. Unfortunately, there is a misconception that the potency of drugs used to prepare a local anesthetic solution is markedly decreased by heat sterilization. Furthermore, such drugs or solutions purchased in vials or bottles are assumed to be sterile as received from the pharmaceutical firm. Therefore, "cold" sterilization or no resterilization of these drugs prior to injection is the usual routine in many hospitals throughout the United States today.

Cold sterilization is the immersion in antiseptic solutions, e. g., 70% alcohol, of the ampuls, vials, and bottles of drugs and solvents necessary to perform a regional block technique. Cold sterilization is employed primarily to check ampuls of drugs for cracks in the glass which may occur during handling and to sterilize the outside of the ampuls so that they may be placed on a tray that has been sterilized with heat.

It is the purpose of this paper to show evidence that cold sterilization or no resterilization is the routine in many hospitals, to point out the disadvantages of cold sterilization, and to describe the advantages and method of heat sterilization as it is used by us. Furthermore, in our opinion, this study proves that heat sterilization of drugs and equipment under the direction of the physician who is to use them is mandatory.

Method of Study

A questionnaire was sent to all the hospitals in the state of Washington in August, 1957. The questionnaire asked which local anesthetic drugs were used in that hospital; how the drugs were sterilized; and, if cold sterilization was used, which solutions were used. Furthermore, the records of patients to whom regional blocks were administered at the Mason Clinic were reviewed from October, 1953, the date on which we changed from cold sterilization to heat sterilization, to March, 1958.

Results

Of the 121 questionnaires sent to the hospitals, 101 (83.5%) were returned. Of this number only 33 hospitals reported they were autoclaving the drugs used for spinal anesthesia; the remaining 68 hospitals used cold sterilization. The agent used was benzalkonium (Zephiran) chloride, 1:1,000, in 25 hospitals; alcohol in 14; methyldodecylbenzyl trimethyl ammonium chloride solution (C. R. I. germicide) in 5; potassium-mercuric-iodide solution in 2; and miscellaneous in 22. Only two hospitals reported they were autoclaving the multiple-dose rubber-stoppered vials or bottles containing the local anesthetic solutions used for infiltration, field block, caudal block, epidural block, or peripheral nerve block; in the remaining 99 hospitals these multiple-dose vials and bottles were used as received from the pharmaceutical company.

A review of our records indicated that 17,368 regional block procedures had been done since October, 1953 (see table). There was not a single

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From the Mason Clinic.

Read in the Symposium and Panel Discussion on Spinal Anesthesia before the Joint Meeting of the Section on Anesthesiology and the Section on Surgery, General and Abdominal, at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

case of infection or neurological sequelae in any of these cases which could be blamed on the use of unsterile equipment or a contaminated local anesthetic solution.

Regional Block Anesthesias Done at the Mason Clinic from October, 1953, to March, 1958

Procedure	Oct.-Dec., 1953	1954	1955	1956	1957	Jan.-March, 1958	Total
Peripheral nerve block	293	1,087	1,062	971	934	276	4,623
Subarachnoid (spinal) block	137	542	515	628	667	190	2,679
Caudal block	227	1,294	1,523	1,833	2,036	523	7,436
Segmental spinal Epidural block	134	569	534	591	674	128	2,630
Total	791	3,492	3,634	4,023	4,311	1,117	17,368

Comment

The results of the questionnaire survey confirmed our belief that, in a large number of the hospitals in the state of Washington, the ampuls, vials, or bottles of local anesthetic drugs and/or solutions for regional block procedures were not being autoclaved prior to use. It was surprising that so many workers were still using cold sterilization for spinal anesthetic drugs.

Heat sterilization has the following advantages over cold sterilization [1]: 1. The drugs, together with the syringes, needles, and necessary equipment, can be sterilized in the block trays. This avoids the opportunity for contamination by use of an unsterile pick-up forceps for transferring the ampul from the jar to the block tray or use of an unsterile file for opening the ampul. Also, it avoids dripping of the sterilizing solution onto the equipment to be used for the block.

2. The possibility of a contaminated solution dispensed by the manufacturer is eliminated.

3. Heat colors, dissolves, or evacuates the crystals or solution of the local anesthetic drug or other agent should there be a small, invisible crack in the sealed ampul. The neurolytic solutions employed in cold sterilization can gain entrance into the ampul in small quantities not detectable even though no discernible cracks are found in the ampuls.

4. Gummed labels are sterilized. This is not true when cold sterilization is used, since the antiseptic solution does not penetrate through gummed labels used to identify ampuls or under rubber bands used to hold ampuls together.

5. Last, but probably most important, heat sterilization forestalls the legal charge of neglect. The most convincing argument for heat sterilization of local anesthetic drugs was in the legal decision of Wooley and Roe versus Ministry of Health of Great Britain, Dr. Graham, and others.[2] In this case two men, who were paralyzed after spinal anesthesia, were suing for negligence because the physician administering the subarachnoid block had soaked the ampuls in phenol prior to use instead of autoclaving them. During the trial, Dr. MacIntosh testified that in 1953 the best way of sterilizing ampuls was by autoclaving. Lord Justice Denning stated, "Dr. Graham sought to escape the danger of infection by disinfecting the ampoule. . . . He did not know that there could be undetectable cracks, but it was not negligent for him not to know it at that time. We must not look at this 1947 accident with 1954 spectacles. . . . But we have been warned . . . and to keep ampoules in solution, until further evidence is forthcoming, in the future will be regarded legally, as negligence."

Because of the literature extolling the virtues of heat sterilization and because this legal decision was well known, the following routine for cleaning and sterilization of equipment, drugs, and solvents used to prepare local anesthetic solutions was established in our institution in October, 1953.[3]

1. The needles, syringes, and solution cups are washed with copious amounts of clear tap water and rinsed with ether. Detergents are not used.[4] 2. The stainless steel trays for regional block anesthesia, containing the equipment, drugs, and solvents, are prepared (fig. 1). 3. A sterilizer control (Diack) is placed in each tray as it is wrapped. 4. The trays are then autoclaved at 225 to 260 F under 18 to 22 lb. of pressure for 30 minutes.

5. When the tray is dry it is removed from the autoclave and stored on a shelf away from all solutions. This point is stressed, for if solutions are unsuspectedly spilled on the tray it may become contaminated even though the sterilizer control in the tray shows adequate sterilization when it is checked (fig. 2). 6. Reserve ampuls of drugs for all regional block procedures are placed in test tubes which are sealed. Extra bottles of saline solution and

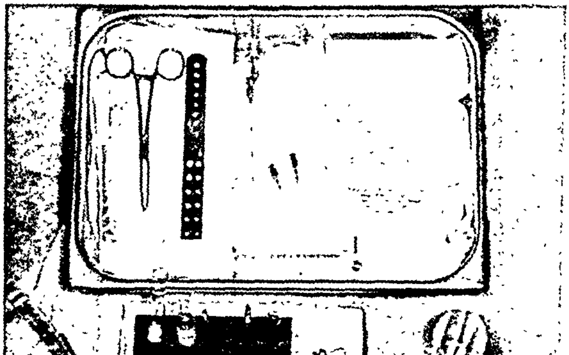

Fig. 1.—Stainless steel tray for regional block anesthesia, containing equipment, drugs, and solvents necessary for subarachnoid block.

vials of commercially prepared local anesthetic solutions too large to fit in test tubes are wrapped individually, together with a sterilizer control, and heat sterilized. Both test tubes and wrapped bottles and vials are stored in a special cabinet (fig. 3). Thus, sterile drugs, solvents, and commercially prepared local anesthetic solutions are always available to replace ampuls in the block trays which have been broken or have evaporated.

We never use hospital-prepared solutions for any regional block procedure. Even the commercially prepared solutions are autoclaved prior to use. Furthermore, all multiple-dose vials are resterilized after being used and before the remaining solution is injected into another patient. Although very few of our colleagues observe this practice and have ridiculed us for this added precaution, its importance was impressed on us in March, 1958, when we received a shipment of 50-cc. multiple-dose ampuls of a local anesthetic solution which had somehow slipped out of the drug company without being sterilized. This was not recognized by the pharmaceutical house until the drug had been in our possession for a number of days. Had this drug been used without our autoclaving it, the troubles it could have created are obvious.

Our experience has shown that the following drugs can be autoclaved at 255 to 260 F under 18 to 20 lb. of pressure for 30 minutes at least once without sufficient loss of potency to alter the expected clinical results: tetracaine (Pontocaine) hydrochloride crystals; tetracaine, 1% solution; procaine (Novocain) hydrochloride crystals; procaine, 1 and 2% solutions; propoxycaine (Blockain) hydrochloride, 2% solution; piperocaine (Metycaine) hydrochloride, 1.5% solution; chloroprocaine (Nesacaine) hydrochloride, 1, 2, and 3% solutions; ephedrine sulfate; methamphetamine (Methedrine) hydrochloride; methoxamine (Vasoxyl) hydrochloride; epinephrine (Adrenalin), 1:1,000; phenylephrine (Neosynephrine) hydrochloride; 10% dextrose solution; dibucaine (Nupercaine) hydrochloride; and lidocaine (Xylocaine), 1 and 2% solutions.

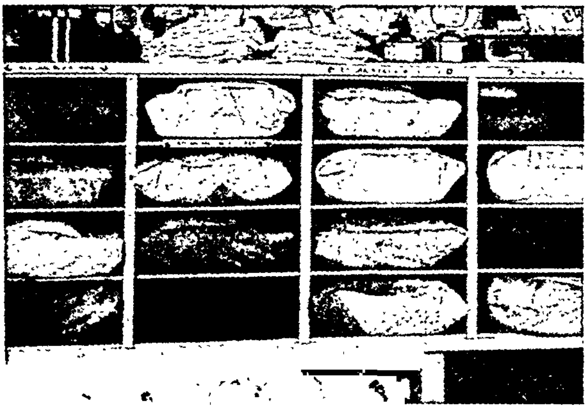

Fig. 2.—Storage space for sterilized trays for regional block anesthesia. Note separate enclosed cubicles to prevent contamination of trays by solutions unsuspectedly spilled on them.

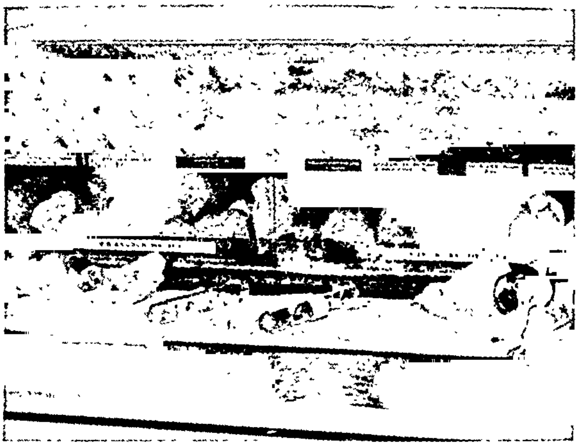

Fig. 3.—Enclosed storage cabinet for test tubes containing reserve ampuls of regional block drugs.

Ammonium sulfate (Dolamin) solutions, oil solutions for local anesthesia (such as Proctocaine), and absolute alcohol can be heat sterilized.[1a] Hyaluronidase cannot be autoclaved at all. Most laboratory tests have demonstrated that the potency of the local anesthetic drugs and solutions, as well as that of vasoconstrictor drugs, is decreased slightly after one or two heat sterilizations, but this small decrease does not affect the clinical results of the drug.[5] On the other hand, more than one or two sterilizations may cause marked decrease in potency, but most figures as to the amount of decrease do not agree.[6]

Summary and Conclusions

If the practice of medicine in the state of Washington can be considered representative of the practice in the United States, then the results of a poll taken in August, 1957, would show how few physicians today appreciate the necessity for heat sterilization of all local drugs, solvents, commercially prepared local anesthetic solutions, and equipment.

The system of heat sterilization used by us in preparing drugs and equipment for regional block procedures has been successful in simplifying the preparation of regional block trays as well as the execution of regional block procedures. The danger of bacterial contamination has been reduced and the danger of antiseptic solution entering a cracked ampul eliminated. Should a neurological complication occur, at least these possible causes have been automatically eliminated. Considering the finality and seriousness of complications after regional block procedures, particularly subarachnoid block, and the large court judgments which have been awarded recently, we conclude that all the local anesthetic drugs, solvents, and commercially prepared local anesthetic solutions, as well as equipment, should be heat sterilized under the direction of the responsible physician prior to their use if freedom from contamination is to be assured.

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ELECTROMYOGRAM IN EVALUATION OF NEUROLOGICAL COMPLICATIONS OF SPINAL ANESTHESIA

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Some assume that spinal anesthesia is responsible for the development of any concurrent neurological manifestations. Of 482 patients whose neurological complaints seemed to be related to spinal anesthesia, 478 showed neurological complaints due to some other concurrent and entirely unrelated conditions imitating actual complications of the spinal anesthetic agent. In the majority of instances, the causative disease proves to be either an infectious neurönitis or a peripheral neuropathy. The electromyogram plays a fundamental role in the evaluation of these complications. Differentiation in the two groups of lesions is based on the following two basic elements: (1) the distribution of the denervation, that is, electromyographic changes, and (2) the time in which the denervation activity is first detected electromyographically. The prevention of misunderstanding about spinal anesthesia is of great importance.

Muscular weakness or actual paralysis, with concomitant root pains, sometimes follows the administration of spinal anesthesia. The implications involved in this situation are so serious as to demand immediate and careful diagnostic attention. Because of the ever-increasing consciousness on the part of the public that legal action often results in large awards, anesthetists, surgeons, and hospital administrators must always be on their guard to evaluate correctly the cause in each individual case. This situation almost invariably produces a tense emotional atmosphere which leads the patient to blame either the anesthetist or the surgeon for the complications. This is especially the case if there is any delay in accounting for the paralysis. When, after surgery with use of spinal anesthesia, the patient is paralyzed in one or both lower extremities, the following questions present themselves: 1. Is the resulting paralysis a genuine motor disability or is

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vials of commercially prepared local anesthetic solutions too large to fit in test tubes are wrapped individually, together with a sterilizer control, and heat sterilized. Both test tubes and wrapped bottles and vials are stored in a special cabinet (fig. 3). Thus, sterile drugs, solvents, and commercially prepared local anesthetic solutions are always available to replace ampuls in the block trays which have been broken or have evaporated.

We never use hospital-prepared solutions for any regional block procedure. Even the commercially prepared solutions are autoclaved prior to use. Furthermore, all multiple-dose vials are resterilized after being used and before the remaining solution is injected into another patient. Although very few of our colleagues observe this practice and have ridiculed us for this added precaution, its importance was impressed on us in March, 1958, when we received a shipment of 50-cc. multiple-dose ampuls of a local anesthetic solution which had somehow slipped out of the drug company without being sterilized. This was not recognized by the pharmaceutical house until the drug had been in our possession for a number of days. Had this drug been used without our autoclaving it, the troubles it could have created are obvious.

Our experience has shown that the following drugs can be autoclaved at 255 to 260 F under 18 to 20 lb. of pressure for 30 minutes at least once without sufficient loss of potency to alter the expected clinical results: tetracaine (Pontocaine) hydrochloride crystals; tetracaine, 1% solution; procaine (Novocain) hydrochloride crystals; procaine, 1 and 2% solutions; propoxycaine (Blockain) hydrochloride, 2% solution; piperocaine (Metycaine) hydrochloride, 1.5% solution; chloroprocaine (Nesacaine) hydrochloride, 1, 2, and 3% solutions; ephedrine sulfate; methamphetamine (Methedrine) hydrochloride; methoxamine (Vasoxyl) hydrochloride; epinephrine (Adrenalin), 1:1,000; phenylephrine (Neosynephrine) hydrochloride; 10% dextrose solution; dibucaine (Nupercaine) hydrochloride; and lidocaine (Xylocaine), 1 and 2% solutions.

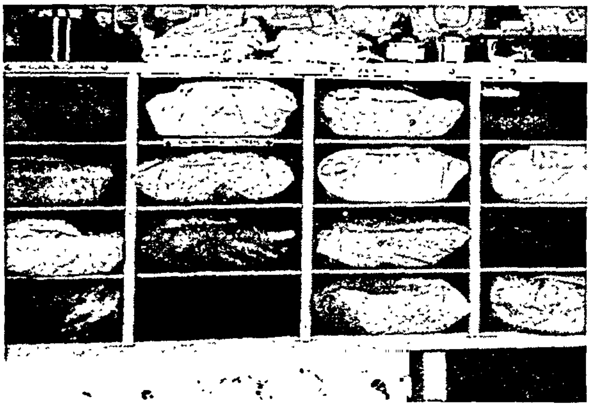

Fig. 2.—Storage space for sterilized trays for regional block anesthesia. Note separate enclosed cubicles to prevent contamination of trays by solutions unsuspectedly spilled on them.

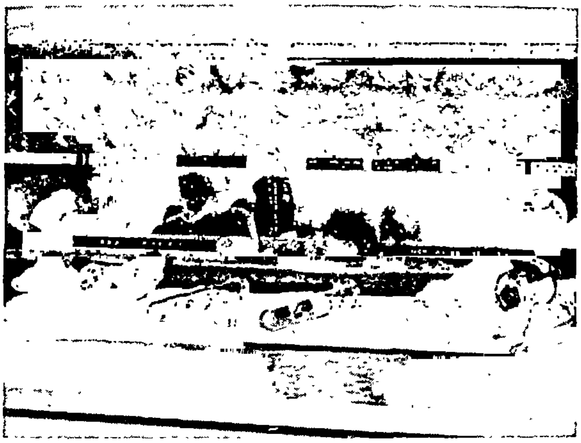

Fig. 3.—Enclosed storage cabinet for test tubes containing reserve ampuls of regional block drugs.

Ammonium sulfate (Dolamin) solutions, oil solutions for local anesthesia (such as Proctocaine), and absolute alcohol can be heat sterilized.[1a] Hyaluronidase cannot be autoclaved at all. Most laboratory tests have demonstrated that the potency of the local anesthetic drugs and solutions, as well as that of vasoconstrictor drugs, is decreased slightly after one or two heat sterilizations, but this small decrease does not affect the clinical results of the drug.[5] On the other hand, more than one or two sterilizations may cause marked decrease in potency, but most figures as to the amount of decrease do not agree.[6]

Summary and Conclusions

If the practice of medicine in the state of Washington can be considered representative of the practice in the United States, then the results of a poll taken in August, 1957, would show how few physicians today appreciate the necessity for heat sterilization of all local drugs, solvents, commercially prepared local anesthetic solutions, and equipment.

The system of heat sterilization used by us in preparing drugs and equipment for regional block procedures has been successful in simplifying the preparation of regional block trays as well as the execution of regional block procedures. The danger of bacterial contamination has been reduced and the danger of antiseptic solution entering a cracked ampul eliminated. Should a neurological complication occur, at least these possible causes have been automatically eliminated. Considering the finality and seriousness of complications after regional block procedures, particularly subarachnoid block, and the large court judgments which have been awarded recently, we conclude that all the local anesthetic drugs, solvents, and commercially prepared local anesthetic solutions, as well as equipment, should be heat sterilized under the direction of the responsible physician prior to their use if freedom from contamination is to be assured.

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ELECTROMYOGRAM IN EVALUATION OF NEUROLOGICAL COMPLICATIONS OF SPINAL ANESTHESIA

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Some assume that spinal anesthesia is responsible for the development of any concurrent neurological manifestations. Of 482 patients whose neurological complaints seemed to be related to spinal anesthesia, 478 showed neurological complaints due to some other concurrent and entirely unrelated conditions imitating actual complications of the spinal anesthetic agent. In the majority of instances, the causative disease proves to be either an infectious neuronitis or a peripheral neuropathy. The electromyogram plays a fundamental role in the evaluation of these complications. Differentiation in the two groups of lesions is based on the following two basic elements: (1) the distribution of the denervation, that is, electromyographic changes, and (2) the time in which the denervation activity is first detected electromyographically. The prevention of misunderstanding about spinal anesthesia is of great importance.

Muscular weakness or actual paralysis, with concomitant root pains, sometimes follows the administration of spinal anesthesia. The implications involved in this situation are so serious as to demand immediate and careful diagnostic attention. Because of the ever-increasing consciousness on the part of the public that legal action often results in large awards, anesthetists, surgeons, and hospital administrators must always be on their guard to evaluate correctly the cause in each individual case. This situation almost invariably produces a tense emotional atmosphere which leads the patient to blame either the anesthetist or the surgeon for the complications. This is especially the case if there is any delay in accounting for the paralysis. When, after surgery with use of spinal anesthesia, the patient is paralyzed in one or both lower extremities, the following questions present themselves: 1. Is the resulting paralysis a genuine motor disability or is

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it to be accounted for on a psychogenic basis? 2. If the paralysis is the result of a true nerve lesion, is such lesion located in the spinal cord, the spinal nerve roots, the corresponding plexus, or the peripheral nerves? 3. If such lesion is located in the spinal cord and/or the spinal nerve roots, is the anesthetic agent its actual cause or is it due to some preexisting or concurrent but unrelated disease? 4. If, on the other hand, the symptoms and signs point to the nerve plexuses and/or the peripheral nerves, is there but one nerve affected (mononeuropathy) or are several of the peripheral nerves involved (polyneuropathy)? 5. Can the etiology be proved with reasonable medical certainty? 6. Can one determine whether the mononeuropathy and/or the polyneuropathy occurred before, during, or after the spinal anesthesia was given? If one can be certain of the exact location as well as of the time of onset of the disease, one can usually come to a correct conclusion and, hence, whether it is actually a complication due to the spinal anesthetic agent or to the surgical procedure.

It is therefore fundamental to the problem to establish these facts. It is just at this point that the electromyogram becomes a useful adjunct to the investigation, as pointed out by Weddell and coworkers in 1944,[1] one of us in 1955,[2] Buchthal in 1957,[3] and Eaton and Lambert in 1957.[4] This has been proved in the past few years, when the electromyogram was used to evaluate a large series of patients of this type presumed to be suffering from postanesthesia neurological complications. Experience derived from a study of these cases clearly indicates that often what were apparently postanesthesia complications were actually due to other concomitant lesions.

In this study, we propose (1) to note the medicolegal aspects of alleged postanesthesia and postsurgical neurological complications, (2) to review briefly what is known about the cause and effects of true neurological complications of spinal anesthesia, (3) to point out the nature of certain simulators of postanesthesia complications particularly of acute infectious neuronitis, (4) to show how the electromyogram is of value in distinguishing between true complications and such imitators, and (5) to indicate the double aspect of spinal anesthesia complications.

Medicolegal Aspects

Out of thousands of patients who have had spinal anesthesia, one may have a profound neurological complication, such as paraplegia of both lower extremities with loss of sphincter control. This rare calamity has created a state of apprehension in medical attendants, including anesthetists, surgeons, consultants, hospital attendants, and administrators, as well as in the general public and, in particular, the patient himself when spinal anesthesia is involved. This situation comes to light whenever any degree of muscular weakness or paralysis follows an operation on a patient under spinal anesthesia, whether these motor symptoms are psychological or pathological in origin. It is clear that, in some cases, the spinal anesthesia has been erroneously incriminated even though a paralysis, such as a foot drop, has occurred weeks after the patient has been discharged from the hospital.

The genuine complications, although rare, have created fertile soil for the unscrupulous members of the legal profession to take advantage of the dictum *res ipsa loquitur.* The anxious patient who finds himself with either muscular weakness or paralysis after spinal anesthesia will naturally ask the doctor what has happened. He complains, "I walked into the hospital and, after the surgery, I am now unable to move my legs." The embarrassed surgeon, as well as the consultant, usually finds it difficult to give the patient a satisfactory answer. In an attempt to answer the patient's inquiry, the surgeon may say, "Possibly I damaged a nerve at surgery; your paralysis may be the result of the spinal anesthesia; you have developed poliomyelitis; or you are imagining your paralysis." The seeds of uncertainty are thereby planted in the minds of the patient and his family. It is usually not difficult to find a member of the legal profession who consciously or unconsciously waters the ground now well fertilized by the already emotional situation. This creates a crop of evil results for the patient, because of lack of proper diagnosis and prognosis, with failure to institute proper treatment. The doctor should learn to say, "We shall find out, but at the present time I do not know." This more positive approach would make the patient more cooperative with the doctor in arriving at the proper diagnosis and proper treatment. It is even possible in most instances to give a favorable prognosis.

This situation can be solved in most cases by the doctors' refraining from expressing divergent opinions and speculative diagnoses and by their securing proper neurological advice and the help of a competent electromyographer. In most instances, the simulators of complications of spinal anesthesia can promptly be brought to light. Such a distinction will benefit most of the patients in that the correct diagnosis and, eventually, full recovery can be achieved.

Pathology of Intraspinal Complications

It has been clearly shown by one of us[5] that certain complications affecting the meninges, nerve roots, and the spinal cord may occur as a result of spinal anesthesia. Although such complications are relatively rare, at least in the United States, the residuals are so serious as to demand careful attention by the anesthetists. It is still uncertain whether these complications are the result of a concentration of the anesthetic agent or whether they occur as a consequence of an irritative product (detergent) injected into the spinal canal along with the anesthetic drug. The number of reported cases in which the intraspinal lesion has been verified at operation or at autopsy is still relatively small. From verified cases, however, it has been shown that the lesions responsible for the clinical symptoms are somewhat variable.

Cauda Equina Syndrome.—The cauda equina syndrome is characterized by a permanent paresis or paralysis of the bladder and/or rectal sphincters *associated with persistent impairment of sensation* of the perineal region. In acute cases, the local meninges and nerve roots are observed to be swollen and markedly congested and the nerve fibers of these roots show early degeneration in the form of vacuolization, as shown by Ferguson and Watkins in 1938.[6] The causative lesion, as ultimately found at autopsy by one of us (C. B. C.), has been marked atrophy of the lower nerve roots of the cauda equina. There is some uncertainty as to whether an isolated peripheral neuropathy can actually occur as a complication of spinal anesthesia. While this cannot be entirely excluded, the possibility of such a neuropathy being due to some other coincidental disease seems to be more likely. Local adhesions of the meninges to the roots of the cauda equina may also be present and found to involve higher levels of the spinal cord.[5]

Chronic Radiculitis.—Multiple chronic radiculitis as a consequence of spinal anesthesia is probably more common than is appreciated. The development of arachnoidal adhesions can evidently be a slow process, as in this condition, resulting from other causes. Weeks or even months after the spinal anesthesia, the patient begins to experience root pains, often scattered at various levels of the spinal cord. Radicular pain, focal paralysis, and atrophy are the common clinical complaints, with motor root involvement being verified by the electromyogram. The lesion begins apparently as an aseptic meningitis which may either clear up spontaneously within two weeks or continue as a chronic form with adhesion formation, as pointed out by Thorsen in 1947.[7] The presence of such adhesions is usually verified by exploration. Both the subdural and subarachnoid spaces may be obliterated with thickening of the meninges.[8]

Myelopathy.—Myelopathy after spinal anesthesia constitutes the *most serious* type of complication as far as the lesion is concerned, being manifest clinically by paraplegia of variable degrees with anesthesia more or less complete up to the level of the cord damage. At times the level may be betrayed by irritative root manifestations. However, multiple foci of root damage may be found by the electromyogram. There are two possible postanesthesia spinal cord lesions: (*a*) acute and (*b*) chronic. The acute lesion may be due in part to severe shock; this seemed to be the chief cause of death in one case as verified by one of us.[5] The lesion proved to be an acute total necrosis of the gray matter of the spinal cord. Such lesions must be extremely rare, for no reports of similar cases have come to our attention.

Chronic myelopathy resulting from spinal anesthesia is a pathological complex with both primary and secondary pathogenic factors. It seems obvious that the external adhesions with involvement of the spinal roots are the direct and immediate effect of the agent (or some concomitant substance) on the *limiting leptomeninges with thickening and opacity* of this membrane. This process is manifest visibly by the formation of adhesions which bind the arachnoid to the pia mater and to the dura mater. Externally, it seems able also to provoke an inflammatory reaction of the dura, with thickening of this membrane. As the process tends not only to spread to higher levels of the cord but also to become accentuated by the contraction of the scar, the disordered local circulation leads to secondary damage of the underlying nervous tissues themselves. The occurrence of peripheral demyelinization of the spinal cord was first demonstrated experimentally by Spielmeyer in 1908[9] and verified in man by one of us in 1955.[5] It is possible that this is a transitory and reversible phenomenon, a possible functional disturbance in the external circulation. Ischemia of the tissues leads to softening of the peripheral portions of the cord, as shown by Brock and associates in 1936,[10] with replacement gliosis if the damage is incomplete. This process seems to be the result of changes in the arterial blood supply, possibly initiated by vasospasm, but ultimately it *is due to structural changes in the arterial wall*—"necrosing arteritis."[11] Perhaps facilitated by the pulsating action of the fluid column on the softened and immobilized spinal cord, central cyst formation develops on the disintegrating cerebral gray matter, adding further to the picture of gross disability.

Although the pathogenesis of the ultimate effects of spinal anesthesia is not completely understood, there can be no doubt that serious irreversible lesions sometimes result. Whether it is the effect of the anesthetic agent itself or of some irritant (alcohol, soap, or detergent) introduced with it is not yet clear. The fact remains that the clinical symptoms as well as the physical effects indicate that the earliest changes are to be expected in the spinal nerve roots, especially those of the cauda equina, with fairly obvious typical pain and a peripheral type of motor disability (weakness and atrophy). It is for this reason that the use of electromyography is of such importance in the early evaluation of an actual or alleged complication. After the secondary and delayed effects of cord involvement become manifest, the diagnosis is rarely in doubt.

Simulators

In this present investigation it has been shown that, with the aid of the electromyogram, many conditions may be concurrent during the period of surgery with use of spinal anesthesia. Such disorders have given rise to symptoms which often simulate or imitate the actual complications of spinal anesthesia. These simulators have almost invariably misled the clinician to incriminate the spinal anesthesia as the cause of the neurological manifestations. These simulators will be discussed in the following paragraphs in the order of their similarity to the problem. They are as follows: (1) acute infectious neuronitis or polyneuritis, (2) preexisting pressure neuropathy, (3) traumatic nerve injury as a direct result of surgery, (4) pressure on the nerve either while the patient is on the operating table or during the period of recovery, (5) pressure neuropathy while the patient is convalescing in the hospital or at home, (6) toxic plexitis, particularly that due to horse serum reaction, (7) progressive spinal muscular atrophy, (8) the myopathies and myotonia, (9) recurrent multiple sclerosis, (10) disuse atrophy, and (11) hysteria.

Acute Infectious Neuronitis.—As one of us and Rand reported in 1956,[12] acute infectious neuronitis can be a perfect imitator of lesions residual to spinal anesthesia. This is because neuronitis is an inflammation of the entire neuron, including the nerve roots and the nerve cells within the spinal cord. Because the anesthetic agent also affects these structures, it is not difficult to understand the similarity of symptoms.

Neuronitis can produce both a reversible and an irreversible reaction in the neuron. In the reversible transitory state, the manifestations can be of three types: (1) pure sensory, (2) pure motor, and (3) sensory and motor combined. In this reversible state, the mild inflammatory reaction and vascular changes probably produce an edema. However, the insult is not sufficiently severe to produce destruction of the nerve cells or of its axons. Therefore, within a period of days the patient has fully recovered. The disease in such a case produces only a transitory physiological block and manifests itself in the form of pure sensory, pure motor, or a combination of both phenomena. The sensory symptoms are manifested by severe radiating pain in the corresponding dermatome. If the disease occurs at the midthoracic level, the resulting pain may simulate that of acute gallbladder disease or peptic ulcer. If the disease attacks the lower thoracic nerve roots, it can simulate either an acute appendicitis or an acute intestinal disorder. If the upper lumbar roots are affected, a surgical lesion of the kidneys is suggested. If the lower lumbar or sacral roots are involved, the acute pain in the lower part of the back naturally imitates a lumbar herniated disk. Perhaps another reason for the resemblance to spinal anesthesia complications is the tendency for both conditions to affect the lower group of spinal nerve roots rather than those of the upper thoracic and cervical ones. This confusion of entities probably accounts for a variety of cases in which the surgeon is disappointed at surgery to find little or no gross changes to account for the severe symptoms. If the operation is done and the spinal anesthesia given when the changes incidental to neuronitis are reversible, it is to be assumed that a natural course of recovery follows. This will occur in patients with the combination of sensory and motor phenomena, as well as in those with either the sensory or the motor phenomenon alone.

On the other hand, when the sensory-motor combination is due to an irreversible lesion, that is, when the disease has produced a degree of actual degeneration of the cells and their axons, the situation will be much more serious. The severe pain will continue and will be followed by paralysis. When this takes place during the postoperative period when the anesthetic agent should be wearing off, the persistence of paralysis raises the question of its origin in the anesthetic agent.

Another serious aspect of this disease is when the infection involves the medullary substance of the spinal cord, producing a form of myelitis, in which case the total picture is then identified as a neuromyelitis. Less frequently, the inflammation also affects the brain itself; this is referred to as neuromyeloencephalitis. These cases are usually fatal. One case in particular during its sensory phase presented acute local symptoms of a typical L-4 herniated disk. The opaque myelogram showed some defect, supporting the diagnosis of such a lesion. However, routine electromyographic evaluation showed, instead of a nerve root compression, diffuse changes from head to foot, including the cranial nerves, all the paraspinal muscles from C-2 through S-5, and all four extremities. Because of the electromyographic findings, the contemplated laminectomy with use of spinal anesthesia was postponed. Within two days, the patient became completely paralyzed. This was followed by central respiratory difficulties. The patient survived in a respirator for two weeks and finally died. If the laminectomy with spinal anesthesia had been done as contemplated, certainly the paralysis and rapidly progressive course which followed would have been attributed to a tragedy of spinal anesthesia complications. It is apparent that when this has happened it has been reported in the literature as acute necrosis of the central gray matter as a possible type of complication of spinal anesthesia.

Clinically, acute infectous polyneuritis resembles grossly a neuronitis. However, there can be one main specific difference between the two: the spinal fluid protein level is normal in polyneuritis while in neuronitis it is usually elevated with a normal cell count. Although the electromyographic changes vary in these disease entities, that is, in neuronitis the paraspinal muscles are involved in addition to the lower extremities and in polyneuritis only the lower extremities are involved, nevertheless when the paralysis is limited to one or both lower extremities it is also a perfect imitator of the complications of spinal anesthesia.

Preexisting Pressure Neuropathy.—Pressure neuropathy can occur before the patient comes to the hospital. He may have been either under the influence of drugs or alcohol or in an unconscious state due to various causes. This situation results in a complete relaxation of the muscles, thus leaving the nerves unprotected and producing an ideal condition for pressure neuropathy. Certain nerves are liable to pressure because of their anatomic accessibility. For example, the leg hanging over the side of the bed exerts pressure on the sciatic nerve. Prolonged crossing of the legs exerts pressure on the peroneal nerve at the head of the fibula. When the leg is dangled over a chair, pressure is created on the tibial nerve at the popliteal fossa. Overabduction can stretch the obturator nerve at its bony emergence. When the patient hangs an arm over a chair, pressure is exerted on the ulnar and median nerves at the middle of the arm. The presurgical neuropathies have been encountered in acute gastric conditions, such as perforated peptic ulcer, pancreatitis, acute gallbladder disease, acute intestinal obstruction, acute appendicitis, such gynecologic conditions as ectopic pregnancy, and induced abortion with profuse bleeding. An undetectable paralysis, already present, becomes apparent as the patient recovers from surgery. The persistence of the paralysis is usually alleged to be the result of a complication of spinal anesthesia.

Traumatic Nerve Injury.—Traumatic nerve lesions as a direct result of surgery have been observed in a few patients.[13] A few cases have been seen of the nerve being actually damaged during surgery but which imitated the complications after spinal anesthesia. The femoral nerve was severely damaged during hernia repair in two patients. This nerve has been partially damaged in eight cases during pelvic surgery. The paralysis in these cases not being present before surgery, the spinal anesthesia has invariably been incriminated for the neurological complication. If the lesion is preexistent, the denervation will be present during the first two postoperative weeks. If this paralysis is the result of the surgical procedure, the changes will not appear until 21 days after surgery. A partial nerve lesion can be demonstrated with the aid of the electromyogram in the presence of complete paralysis. Such favorable information gives the patient a considerable amount of psychological relief when he is informed that the paralysis is not a complication of spinal anesthesia, that the nerve was not cut during surgery as was possibly suggested by medical attendants, and that he will eventually recover from his paralysis. This favorable information has usually dissipated any contemplated medicolegal action.

Pressure Neuropathy During Surgery.—Pressure on the nerve during the period of surgery and/or recovery period has been observed rather frequently.[13] In this condition, denervation activity will be limited to the muscle group innervated by the affected nerve. The electromyographic changes will appear in the fourth postoperative week. Here again, these pressure neuropathies have imitated the complications of spinal anesthesia, but the distribution of electromyographic changes are those of a mononeuropathy and not those of cauda equina radiculopathy. The nerve lesion which most resembles the complication is that of the sciatic nerve caused by either intramuscular injection in the gluteal region or pressure at the gluteal fold. Both femoral and obturator nerves have been found to be liable during extreme abduction during vaginal or rectal procedures. Also, the obturator nerve has been found stretched when the leg was allowed to be in an extreme abductive position while the patient was in an unconscious state. The peroneal nerve is liable to pressure at the head of the fibula, resulting in a foot drop. Cases have been seen in which pressure on the tibial nerve at the popliteal fossa has occurred, resulting in muscular weakness and atrophy of the calf and foot. In addition, bilateral pressure on the ulnar nerve resulting in muscular wasting of both hands brings a cervical or upper thoracic lesion into consideration and has simulated chronic adhesive arachnoiditis.

The electromyographic changes in all these cases are to be found three weeks after the actual date of the surgery. However, one can not definitely state whether such pressure took place one or two days before, during, or immediately after surgery. One can definitely state that the affection is not the result of the surgical procedure if such a lesion is not within the area of the surgery, such as a peroneal nerve involvement (foot drop) after abdominal surgery. On the other hand, the spinal anesthesia in these cases cannot be incriminated, regardless of the date of appearance of the electromyographic changes, for the simple reason that the paraspinal muscles are normal.

Pressure Neuropathy During Convalescence.—Pressure neuritis during the convalescent period can occur either in the hospital or after the patient returns to his home.[14] The muscular weakness or paralysis has been alleged to be the direct result of spinal anesthesia complication. This type of neuropathy often occurs when the patient stays in bed reading for long periods of time; the exertion of pressure at the elbows produces changes in the ulnar nerves, resulting in muscular wasting of the hands. Occasionally, this condition has been interpreted clinically as the progressive widespread spinal cord changes which are seen in chronic progressive adhesive arachnoiditis.

Patients have also been observed who had peroneal and tibial nerve lesions resulting from either prolonged crossing of the legs or dangling of the legs while sitting in a rocking chair in the hospital or at home (viewing television). Here again the spinal anesthesia has been incriminated.

Toxic Plexitis.—Toxic plexitis is most frequently the result of a horse serum reaction from tetanus antitoxin injection. However, occasionally it is seen in other toxic reactions after an extremely high fever. The factor in this lesion which simulates the complications of spinal anesthesia is that the clinical muscular weakness or paralysis does not appear until about 10 days after the injection. Patients who have had surgery under spinal anesthesia during this intermediate period and whose paralysis appears during the postoperative period have erroneously incriminated the surgical or spinal procedure for the neurological complications. This has been especially true when the reaction was severe, involving not only the cervical and brachial plexuses but, to lesser degree, the lumbosacral plexuses as well. In these cases, the electromyographic changes are essentially peripheral, with no specific changes in the paraspinal muscles. This characteristic distribution rules out the complications due to the anesthetic agent, regardless of the time when the electromyographic changes are detected. When this condition is unmasked, naturally the patient who is apprehensive about the complications of spinal anesthesia is relieved when informed that he will recover eventually from his paralysis. This positive statement gains the proper cooperation from the patient for treatment and also can eliminate the possibly contemplated medicolegal action.

Spinal Muscular Atrophy.—Progressive spinal muscular atrophy has at times simulated spinal anesthesia complications. This condition in patients in whom the manifestations become gradually apparent, especially in the lower extremities, can simulate a lumbar herniated disk, as shown by Shea and co-workers in 1950.[15] A few of these patients have undergone laminectomy under spinal anesthesia. The subsequent progressive muscular wasting of both lower extremities has imitated the complications of spinal anesthesia. This disease not only simulates cauda equina radiculopathy but, as it progresses, also involves the upper extremities. The resulting clinical picture imitates chronic adhesive arachnoiditis. Although the clinical manifestations may be limited to the lower extremities, the electromyographic changes are plurisegmental in distribution and are accompanied by pathological fasciculations. The changes are detected immediately. The distribution of the denervation and the time it is detected differentiates this disease from cauda equina radiculopathy, in which the changes are restricted and will not be detected until three weeks after the spinal anesthesia. Here we have a specific example which illustrates the importance of immediate electromyographic evaluation—as soon as the muscular weakness manifests itself.

Myopathy and Myotonia.—At times, the myopathies and myotonia may simulate complications of spinal anesthesia. Some patients suffering from the distal form of muscular dystrophy, as well as some with myotonia, have claimed that the atrophy and/or muscle spasms were noted after spinal anesthesia. The differential diagnosis is a matter of great simplicity. First of all, no denervation activity is found, but dystrophic and/or myotonic activity are recorded. These findings rule out complications of spinal anesthesia.

Multiple Sclerosis.—Recurrent attacks of multiple sclerosis at times have taken place during the period of spinal anesthesia. The muscular deficit produced by this disease has been thought to be the result of the anesthetic agent. Multiple sclerosis, being an upper motor neuron disease, gives no electromyographic changes. Therefore, spinal anesthesia complications are definitely ruled out.

Disuse Atrophy.—Disuse atrophy, as reported by one of us and Rand in 1958,[16] is the result of lack of use of the voluntary muscles; it has been observed to occur in numerous conditions, especially in hysteria and in bone pathology or upper motor neuron lesions. Again, on occasion, spinal anesthesia has been erroneously incriminated. In these cases, the electromyographic findings are absolutely normal.

Hysteria.—Conversion hysteria, manifested in the form of paralysis of one or both lower extremities, also has imitated complications after spinal anesthesia.

Electromyogram in Differential Diagnosis

In the past few years, the electromyogram has been used by one of us (A. A. M.) to evaluate a large series of patients suffering from muscular weakness or paralysis as caused by a number of neurological conditions. The manifestations were not infrequently alleged to stem from spinal anesthesia. In a large series of cases, this allegation was worthy of critical analysis in 482. With the aid of the electromyogram, the true nature of the situation was unmasked. It is noteworthy that there was evidence of true complications of spinal anesthesia in only 4 patients, while in the remaining 478 the condition was actually due to an unrelated disease. Because the electromyogram plays a fundamental role in the evaluation of these complications, it is only proper that a brief basic résumé of clinical electromyography should be presented.

The present communication is concerned with the profound complications which follow spinal anesthesia and a group of other conditions which simulate it. Differentiation in these two groups of lesions is based on two basic elements: (1) the distribution of the denervation, that is, electromyographic changes, and (2) the time in which the denervation activity is first detected electromyographically.

The precise location of the lesion can be determined by the distribution of the denervation and altered motor units. For example, in true complications of spinal anesthesia,[2] the denervation activity will not be detected until three weeks after the actual administration of the anesthetic agent. The distribution of the denervation activity is uniform and restricted. In a typical case of a true cauda equina radiculopathy, the changes will be found in the paraspinal muscles, the pelvic girdle, and the muscles of both lower extremities, that is, in the muscles innervated from about the level of L-1 down to the first coccygeal nerve root, in the lumbosacral plexuses, and in all the peripheral nerves of both lower extremities. No denervation activity will be found above the level of L-1, in the muscles of the cranial nerves, in the cervical or thoracic nerve roots, or in the peripheral nerves of the upper extremities—arms, forearms, or hands. In short, the changes are uniform in distribution and restricted in area and will appear three weeks after the administration of the spinal anesthesia.

In patients in whom the complications eventually assume the clinical picture of chronic progressive adhesive spinal arachnoiditis,[2] the electromyographic changes will start to appear after the third postoperative week and they will be found in the nerve roots of the lumbosacral region, in the corresponding plexuses, and in the peripheral nerves of the lower extremities. As time goes on, the electromyographic changes gradually assume an ascending trend which finally involves the paraspinal muscles of the thoracic and cervical regions, as well as those of the upper extremities.

The electromyographic changes in virus neuronitis[12] are widespread, involving the paraspinal muscles as well as the extremities. As a rule, the denervation decreases on ascending from the extremities to the muscles of the back. In a typical case, one finds changes in both feet, legs, and thighs, in the pelvic girdle, and in the paraspinal muscles, with the changes in the paraspinal muscles fading out as one approaches the eighth dorsal level. Occasionally, changes are also found in the distal portion of both upper extremities and in the muscles of the face. In spite of uneven widespread electromyographic changes, the patient may complain of weakness or paralysis in the low part of the back and in one or both lower extremities simulating a true complication of a spinal anesthesia. In short, the changes are uneven in distribution and will be detected as soon as the apparent complications manifest themselves.

Patients suffering from acute infections polyneuritis show electromyographic changes in both extremities and no changes in the paraspinal muscles. Here again, the clinical manifestations may be limited in one or both lower extremities, simulating a cauda equina lesion. In short, the changes will be detected immediately and are essentially peripheral in distribution.

Electromyographic changes in involvement of the lumbosacral plexus will, of course, not be found in the paraspinal muscles. They will be present in the gluteal group, the thigh, and the muscles of the leg and foot. The main differential point consists in finding no changes in the paraspinal muscles.

In cases of involvement of the sacral plexus, changes will be present in the gluteal group, the hamstrings, and the muscles of the leg and foot. No changes will be found in the quadriceps or adductor group or in the paraspinal muscles, which rules out a diagnosis of complication of spinal anesthesia.

Lesions of the femoral nerve[17] show denervation activity only in the quadriceps, with none in the paraspinal muscles, which will differentiate such a lesion from the cauda equina in which denervation activity will be found uniformly in the paraspinal muscles as well as in both lower extremities.

A lesion affecting the obturator nerve will show changes confined in adductors. A lesion of the peroneal nerve shows changes only in the muscles innervated by the common peroneal nerve on the side of the leg.

Tibial nerve lesions at the level of the popliteal fossa may also simulate the true complications of spinal anesthesia. However, denervation activity in tibial nerve lesions is confined only in the muscles of the back of the leg and foot. None are found above the level of the knee.

Plantar nerve lesions[18] are now believed to be one of the most misleading of nerve lesions. This lesion has simulated lumbar herniated disk syndrome, for which some patients have had a laminectomy. The persistence or aggravation of the symptoms have been alleged to be the result of postanesthesia complications. The electromyographic changes are confined only in the intrinsic muscles of the involved foot instead of the distribution of the nerve root for which the patient had the surgery.[15]

To sum up, the differentiation between lesions of either the nerve plexuses or the individual peripheral nerves and the complications of spinal anesthesia is that in the complications denervation activity will be found in both the paraspinal muscles and those of the lower extremities while in disorders of the plexuses and of the peripheral nerves the electromyographic changes are confined to the respective muscle groups. Furthermore, if the lesion involving the plexus or the peripheral nerves preexisted the spinal anesthesia for three weeks, the denervation activity will be detected as soon as the complications become apparent. On the other hand, if the lesion occurred during the period of surgery, the electromyographic changes will not be detected until three weeks after the surgery has been done. For this reason, the electromyogram should be done as soon as the complications manifest themselves.

In progressive spinal muscular atrophy, which may be confused with chronic adhesive arachnoiditis, the electromyographic changes will be present as soon as the complications manifest themselves and will be found to be widespread both in the paraspinal muscles and in all four extremities as well, even in the cranial nerves at times. Occasionally a distal form of progressive muscular dystrophy with physical alteration in the muscles of the leg can also simulate cauda equina radiculopathy. The electromyogram will show no denervation activity but, instead, dystrophic activity. Finally, the distal forms of myotonia have sometimes been confused with cauda equina radiculopathy because of the muscle spasms and muscle weakness of the lower extremities. The electromyogram, of course, will show no denervation activity but, rather, only myotonic activity.

Double Aspect of Spinal Anesthesia Complications

It is just as important to anticipate alleged complications of spinal anesthesia as it is to point out the true character of certain imitators of these complications. In other words, prevention of difficulty is just as worthwhile, perhaps even more so, as distinguishing between the true and false when neurological symptoms and signs appear after the anesthetic episode has occurred. The prophylactic aspects of the problem will be discussed first.

The prevention of misunderstanding about spinal anesthesia is so important that any reasonable steps in this direction are worthwhile. Because prodromata of many of the simulators of spinal complications can be suspected if not detected, the prospect for spinal anesthesia should be questioned about any episodes of recent upper respiratory infections, febrile states, vaccination, or the administration of antitoxins. The patient should be asked about the occurrence of neuropathic symptoms—radiating pains, especially in the thoracic, lumbar, or lumbosacral root zones, the presence of abnormal sensations in the form of numbness, tingling, or burning, and the impairment of loss of motor power. The excessive use of alcohol or of sedative drugs leading to stupor or lethargy should be investigated for complications complained of after the anesthesia has been given. An inquiry regarding symptoms suggestive of possible episodes of loss of consciousness, anterior poliomyelitis,[19] multiple sclerosis, progressive spinal muscular atrophy, or myopathy should also be investigated. In case of any doubt or suspicion, a neurological examination, lumbar puncture for possible changes, and, above all, an electromyogram to check on antecedent alteration is of vital importance in avoiding misinterpretation of postanesthesia complaints.

It is needless to urge the necessity of keeping accurate records of actual procedure, the verification of the agent used, the size of spinal needle, and the precise interspace at which the injection was done. A wise precaution in any case would be withdrawal of a few cubic centimeters of spinal fluid for cell count and total protein level before the spinal anesthesia is administered in case of any doubt, particularly because these tests can be done in a short time.

The second aspect of the problem deals with the postanesthesia manifestations which suggest complications. The first step is a consultation with a competent neurologist and the second an immediate and thorough electromyographic examination. The neurologist may bring to light evidence favoring some preanesthesia neurological disease or disorder which can account for the symptoms. He may also delineate a case of malingering or of conversion hysteria. The electromyogram may likewise help by demonstrating the preexistence of lower motor neuron disease, for, if significant changes are found, it may be assumed that such changes were due to a disease already existing at least three weeks prior to the administration of the anesthetic. Moreover, the electromyographic findings may indicate that the causative disorder is not in the anterior horn cells, the motor root, or peripheral nerves but in the muscles themselves. At times, this examination may show that the complication is incidental to the surgical procedure rather than the anesthetic. Spinal anesthesia can be incriminated only when characteristic root manifestations (cauda equina) are found in the lower spinal levels only after three weeks have elapsed. When there is any question as to complications, an electromyogram should be done or even repeated before the patient leaves the hospital. This is to rule out evidence of complications which may actually occur at home but later be charged to the spinal anesthesia. Such a repeat should be done about three weeks after the spinal was done, for, if no changes are present after that interval, the anesthetic agent can be exonerated.

Summary and Conclusions

Out of thousands of patients who have been given a spinal anesthetic only rarely does one develop a neurological complication. Nevertheless, the possibility of such a calamity has created among the laity an apprehension which manifests itself whenever this form of anesthesia is followed by any type of muscular weakness or paralysis. For this reason, it is not uncommon for some to assume that the spinal anesthetic is responsible for the development of any concurrent neurological manifestations. In the recent past, a large series of patients who alleged that muscular paralysis was a direct result of spinal anesthesia have been examined by the electromyogram.

As a basis for this study, 482 patients whose neurological complaints seemed to have some merit were critically investigated. It was rather surprising to learn that evidence of what seemed to be true complications of spinal anesthesia were found in only four patients of this group. In the remaining 478 patients the neurological complaints were due to some other concurrent and entirely unrelated conditions. These conditions had imitated actual complications of the spinal anesthetic agent. On this basis, it would appear that in only 1 of 120 cases (0.82%) did the paralysis actually prove to be due to a genuine anesthetic complication. This experience indicates that the true picture of such complications can be delineated only by competent neurological examination and a complete electromyographic study undertaken by an experienced electromyographer. This comprehensive evaluation of the picture should be undertaken just as soon as the muscular weakness or paralysis becomes apparent. This urgency is based on the observation that the damage to the spinal nerve roots due to the anesthetic agent will not manifest itself on the electromyogram until three weeks after the actual date of the anesthesia. Therefore, if one finds electromyographic changes immediately or soon after the spinal anesthesia, it presumes the preexistence of some other disorder. In the majority of instances, the causative disease proves to be either an infectious neuronitis or a peripheral neuropathy.

Thus, with the aid of the electromyogram it has been pointed out that often some other entirely unrelated condition is responsible for the apparent neurological complications of the spinal anesthesia. These conditions, actually counterfeits of postanesthesia complications, have falsely incriminated the anesthetic agent itself for the paralytic state in almost 99% of the cases examined. The anesthetic agent was actually responsible for the paralysis in about 1% of the patients examined.

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CLINICAL NOTES

STAPHYLOCOCCIC ENDOCARDITIS TREATED WITH RISTOCETIN

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The treatment of endocarditis caused by Staphylococcus (Micrococcus) pyogenes var. aureus has become a challenging problem; therefore, two patients successfully treated with a new antibiotic agent, ristocetin, are reported on here. In these two patients, the infections were acquired in hospitals and, as might be expected, the staphylococci were resistant to penicillin. Each was critically ill when therapy was started, and the use of ristocetin was associated with prompt clinical improvement and eventual bacteriological cure.

Thrombophlebitis of severe degree developed in both patients and complicated administration of the antibiotic, and severe leukopenia occurred approximately two weeks after the onset of therapy in both patients. These complications cleared after completion of therapy.

Report of Cases

Case 1.—A 32-year-old woman was admitted to the University of Kansas Medical Center on Oct. 9, 1957. She first noted the onset of chills and fever during the afternoon of Sept. 21. The next day, she was admitted to her local hospital and aborted a two-month-old fetus. The chills and fever continued and, two days later, a dilatation and curettage was performed. Initially, she was placed on therapy with penicillin and streptomycin, but she continued to have daily temperature elevations to between 104 and 105 F (40 and 40.5 C). She then received oxytetracycline, chlortetracycline, and novobiocin. During the 19 days in the local hospital, the patient was afrebile for only one six-hour period; this occurred after she was given corticotropin for four days prior to transfer to this hospital.

The history revealed numerous sore throats as a child, but no findings suggestive of rheumatic fever. There was no history of heart disease or of a heart murmur.

At the time of admission to this hospital, the patient complained of chills, fever, and weakness. She also described sharp pain, pleuritic in nature and present for two days, in the left anterior part of the chest.

Physical Examination.—The patient was an obese woman who was pale and appeared acutely and chronically ill. Blood pressure was 120/55 mm. Hg, pulse rate 120 per minute, respiratory rate 28 per minute, and temperature 101.6 F (38.6 C). Numerous hemangiomas were present over the anterior part of the chest and upper extremities. No petechiae were seen in the conjunctiva or elsewhere over the body. Rales were present in both lung bases and in the left anterior apical area of the lungs. The heart was enlarged to percussion. There was a gallop rhythm at the apex, and a grade 2 systolic murmur was present in the third interspace to the left of the sternum. The liver was palpable at the right costal margin. The spleen was not palpable. Pelvic examination was negative. Pitting edema of the ankles was demonstrated. Findings on neurological examination were within normal limits.

Laboratory Data.—Urinalysis showed a trace of albumin and microscopically many red blood cells and 8 to 16 pus cells per high-power field. The hemoglobin level was 8.7 Gm. per 100 ml., and the white blood cell count was 10,300 per cubic millimeter with 83% neutrophils. Results of serologic testing were negative. The blood urea nitrogen level was 15 mg. per 100 ml., and the blood sugar level was 84 mg. per 100 ml. The sedimentation rate was 33 minutes per hour (Cutler). The C-reactive protein precipitation was 4+, and the antistreptolysin-O titer was 333 units.

The electrocardiogram revealed a P-R interval of 0.16 second, and there was sinus tachycardia with 120 beats per minute. An infiltration was present in the left upper lung field on the roentgenogram, which was characteristic of a pulmonary infarction. The heart size was at the upper limits of normal.

During the first 12 hours after admission, eight blood cultures were obtained. A coagulase-positive, hemolytic Staph. pyogenes var. aureus was grown from each of these cultures, and, quantitatively, 45 to 248 colonies were isolated from each cubic centimeter of blood. The disk type of sensitivity study revealed only moderate sensitivity to erythromycin, chloramphenicol, and nitrofurantoin (Furadantin). Tube dilution sensitivities[1] are recorded in the table.

Tube Dilution Sensitivities, in Micrograms per Cubic Centimeter, in Two Patients Being Treated for Staphylococcic Endocarditis

	Case 1		Case 2	
Antibiotic	Sensitive to	Resistant to	Sensitive to	Resistant to
Erythromycin	0.16	0.08	0.08	0.04
Oleandomycin	0.50	0.25	...	...
Nitrofurantoin	37.50	30.00	...	...
Novobiocin	125.00	100.00	0.30	0.016
Penicillin (units)	1,000.00	500.00	62.50	50.00
Ristocetin	5.00	3.90	3.10	2.50
Chlortetracycline	...	...	0.60	0.30
Streptomycin	...	...	25.00	31.30

Hospital Course.—During the first 24 hours after admission, the patient was digitalized. Her temperature rose to 103.2 F (39.5 C) on Oct. 9 and to 104.6 F (40.3 C) the next day. She complained of pleuritic pain in the left anterior part of the chest, and a friction rub was audible in this area. On Oct. 10, after the eighth blood culture was obtained, novobiocin therapy was started. On Oct. 12, tube dilution sensitivities were available, and that therapy was discontinued. Erythromycin, 2 Gm. every six hours, was then given orally. The temperature curve is shown in fig. 1. Although she became afebrile after receiving erythromycin two days, the fever returned in five days and, clinically, she remained critically ill. Blood cultures were repeatedly negative after erythromycin therapy was begun. On Oct. 25, she complained of severe nausea and vomited after every meal. This continued until Oct. 27, when the erythromycin dosage was decreased to 1 Gm. every six hours. At this time, ristocetin therapy was begun. A "cut-down" (venostomy) on the

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left small saphenous vein was performed and a polyethylene catheter inserted. Ristocetin, 1.5 Gm., was given intravenously in 500 cc. of 5% glucose in water every eight hours. This was administered in two hours and was followed by isotonic sodium chloride solution or 5% glucose in water given slowly, to maintain the cut-down. Twenty-four hours after starting the ristocetin therapy, the temperature returned to normal. On Nov. 4, the ristocetin dosage was decreased to 1 Gm. every 12 hours, and, on Nov. 8, this therapy was discontinued. The total dose was 44 Gm. Serum concentrations of ristocetin were determined four hours after administration of the antibiotic on four occasions. The levels on Oct. 30, Nov. 1, and Nov. 4 were 80 mcg. per cubic centimeter and on Nov. 7, 40 mcg.

On Oct. 29, thrombophlebitis developed in the left leg and a second cut-down was performed on the right leg. Severe thrombophlebitis also developed in this leg before therapy was discontinued. On Nov. 6, anticoagulant therapy with aqueous heparin and bishydroxycoumarin (Dicumarol) was begun. The thrombophlebitis improved after the institution of this therapy.

As noted in figure 2, the white blood cell count was 3,700 per cubic millimeter, with 71% neutrophils, on Nov. 8, when the ristocetin therapy was discontinued. During the next seven days, the count declined to 1,400, with 4% neutrophils. The eosinophil count did not rise until the white blood cell count and neutrophils increased in number. Specific therapy was not instituted for the neutropenia, and antibiotics were not administered during this period. The hemoglobin level and platelet counts remained unchanged.

After the thrombophlebitis subsided, the patient became afebrile and asymptomatic. The heart murmur was heard with difficulty when she was dismissed from the hospital. Correspondence with her local physician two months after her discharge revealed that the patient had resumed her duties as a housewife.

The origin of the staphylococcic bacteremia in this patient is difficult to establish, and several possibilities exist. Three of her children had recently been hospitalized with sore throats, and a staphylococcic infection may have been acquired from them prior to her hospital admission. Infection may have occurred in the hospital after the abortion and subsequent curettage. Sensitivity studies on the organism which was isolated from the blood cultures would suggest that this was a hospital strain of staphylococcus.

Location of the heart murmur in the second left intercostal interspace and absence of transmission of this murmur into the neck would indicate the pulmonary valve as the site of the endocarditis. Pulmonary embolization, in the absence of demonstrable disease in the peripheral veins, would substantiate this impression. Further evidence was the changing heart murmur after therapy. A murmur had not been described previously, although the patient had been examined repeatedly during six previous pregnancies.

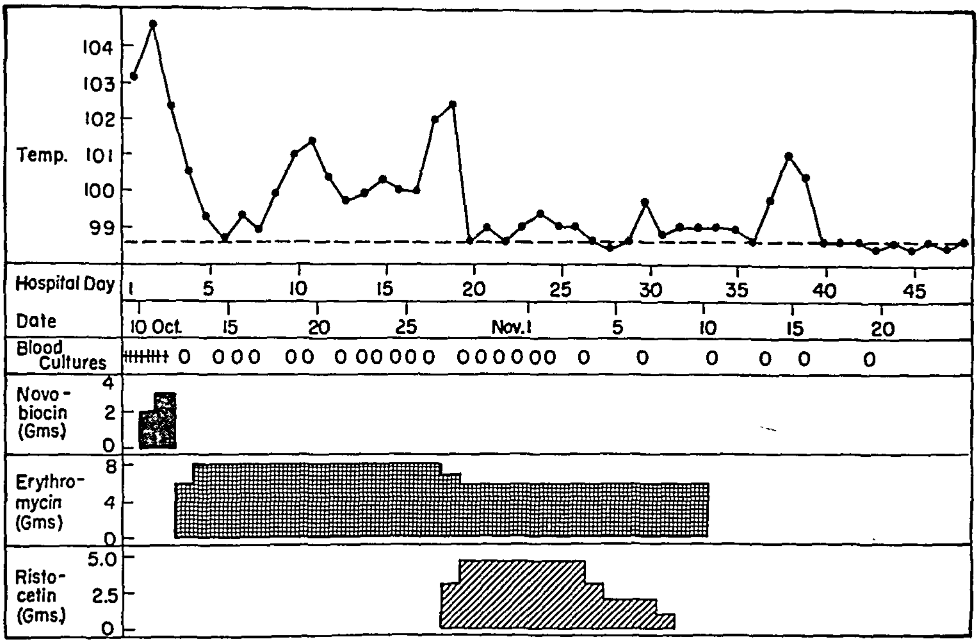

Fig. 1 (case 1).—Temperature curve of patient with staphylococcic endocarditis treated with novobiocin, erythromycin, and ristocetin.

Resistance of this staphylococcus to novobiocin was unusual, but the antibiotic had been administered in inadequate amounts, 750 mg. daily for one week, before sensitivity studies were made. Rantz and co-workers [2] reported a similar experience in a young woman with staphylococcic endocarditis. Their patient received 1 Gm. of novobiocin daily for three days, and, when sensitivity studies were performed later, the organism had increased its resistance to this antibiotic from 0.5 mcg. to 20 mcg. per cubic centimeter. Unfortunately, previous cultures were not obtained in this patient, but it is likely that the resistance developed while she was receiving the antibiotic in relatively small amounts. Novobiocin was given here for only two days and did not affect the clinical course.

Initially, the response to erythromycin was encouraging, but, after five days, clinical deterioration began and fever returned. Previous reports of the ineffectiveness of erythromycin alone in the treatment of staphylococcic endocarditis further emphasized the necessity of use of a second antibiotic agent.[3] Sensitivity studies indicated that ristocetin would be effective, and adequate serum levels were demonstrated after its administration.

CASE 2.—A 21-year-old woman was admitted to the University of Kansas Medical Center on Oct. 7, 1957. She complained of weakness and painful swelling of the joints and muscles.

She was first hospitalized at another hospital, Aug. 19, 1957, because of dysmenorrhea. A laparotomy was performed on Aug. 21, and a corpus luteum cyst was removed. Excessive uterine bleeding occurred after surgery, and curettage was performed on the sixth postoperative day. She became febrile after this procedure and was given penicillin, streptomycin, sulfadiazine, and tetracycline. On Sept. 1, she complained of generalized muscular aching and joint pains. On Sept. 12, an abscess was noted in the left antecubital fossa, and, on Sept. 20, a second abscess was noted in the right antecubital area. The temperature was frequently elevated to 102 to 103 F (38.8 to 39.4 C), and arthralgia and myalgia increased. A muscle biopsy was obtained, and a diagnosis of dermatomyositis was suggested. Corticotropin and cortisone therapy was started on Sept. 27. Although the fever subsided with steroid therapy, other symptoms remained and she was transferred to this hospital while still receiving antibiotic therapy.

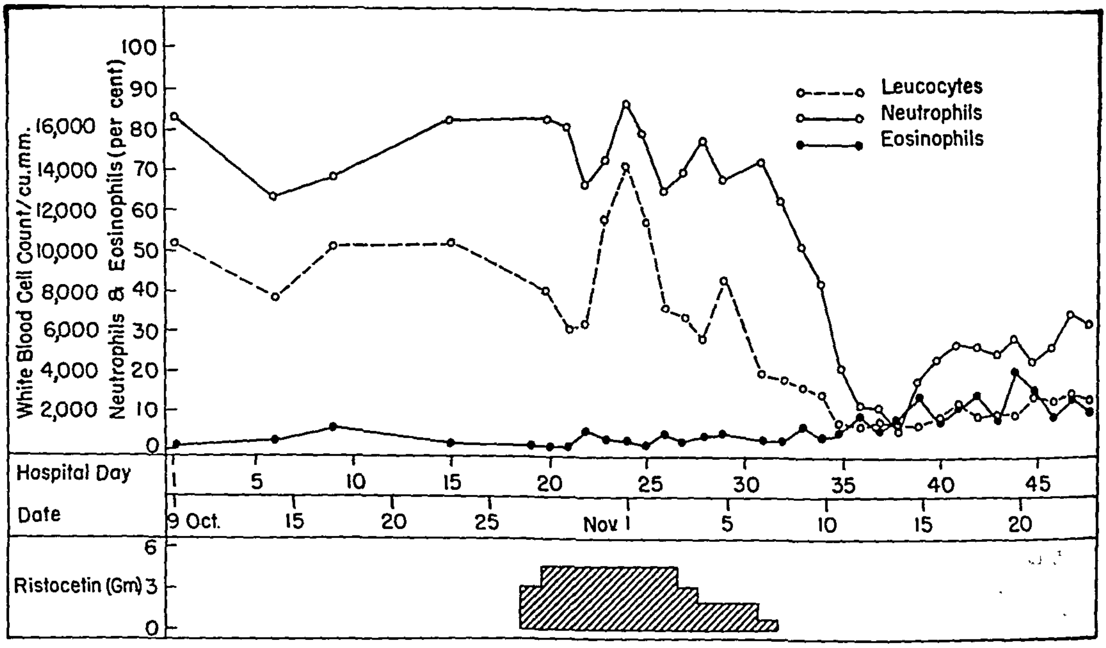

Fig. 2 (case 1).—Effect of ristocetin on leukocyte, neutrophil, and eosinophil counts in patient with staphylococcic endocarditis.

Her history revealed that a diagnosis of acute rheumatic fever had been made in 1954. She described joint pains and fever with this illness. A heart murmur was also discovered at this time. The symptoms disappeared without treatment or bed rest. In 1947, she had pneumonia and, in 1951, an appendectomy. During the previous years in college, she had had numerous respiratory infections characterized by cough and rhinitis.

Physical Examination.—The patient was pale and appeared chronically ill but was in no acute distress. She weighed 125 lb. (58.5 kg.). Blood pressure was 110/60 mm. Hg and pulse rate was 72 per minute and regular. A grade 2, blowing, systolic murmur was heard in the third intercostal interspace, immediately to the left of the sternum, and was transmitted over the base of the heart and into the carotid arteries. A recent, well-healed, suprapubic scar was present. The liver and spleen were not palpable. Minimal pitting edema was present in both lower extremities. The bilateral anticubital abscesses were healing, and pus could not be extracted on pressure.

Laboratory Data.—Urinalysis revealed a heavy trace of albumin, occasional pus, and occasional red blood cells. The hemoglobin level was 12.8 Gm. per 100 ml., and the white blood cell count was 16,000 per cubic millimeter, with 73% neutrophils, 21% lymphocytes, 3% monocytes, and 1% eosinophils. Findings on the Venereal Disease Research Laboratory test were negative. L.E. cells were not observed in peripheral blood. The agglutination test for heterophil antibodies was positive in a 1:14 dilution. The sedimentation rate was 15 mm. per hour. The antistreptolysin-O titer was 12 units. Findings on the electrocardiogram were within normal limits. A normal-sized heart and clear lung fields were seen on x-ray examination. Six blood cultures were obtained, and no growth was observed aerobically or anaerobically.

Hospital Course.—During the next 10 days in the hospital, the maximum daily temperature was between 99.4 and 101 F (37.4 and 38.3 C). The dosage of cortisone was gradually decreased, and therapy with this drug was discontinued on the ninth day. Therapy with antibiotics was discontinued on admission. The patient continued to complain of muscle aching, but no objective findings were observed.

On Oct. 17, 1957, the patient was allowed to go home for four days. On Oct. 21 she returned to the hospital with chills and fever. The temperature was 104 F (40 C). The physical findings were essentially unchanged, and no petechiae were noted. The initial blood culture grew 183 colonies of hemolytic Staph. pyogenes var. aureus, coagulase-positive, per cubic centimeter of blood. Four blood cultures were obtained during the first 12 hours in the hospital, and all were positive.

Therapy with aqueous sodium penicillin G, 5 million units every six hours, was started on Oct. 22, before sensitivity studies were available. Novobiocin, 1 Gm. every six hours, was given the following day on the basis of disk sensitivity study results. A novobiocin blood level of 38.4 mcg. per cubic centimeter of serum was obtained 24 hours after starting therapy with this antibiotic. The tube dilution sensitivity results are recorded in the table.

Novobiocin therapy was continued until Oct. 27, as noted in figure 3, when it was discontinued because the patient developed a generalized erythematous macular rash. Nausea and vomiting also occurred frequently after this medicament was given. On Oct. 26, petechiae were first noted on the abdomen. Therapy with erythromycin, 1 Gm. orally every eight hours, and ristocetin, 1 Gm. intravenously every six hours in 500 cc. of 5% glucose in water, was begun when that with novobiocin was discontinued. It was necessary to insert a polyethylene catheter into the small saphenous vein to give the intravenous therapy. Within two days, thrombophlebitis developed in this leg, but therapy with ristocetin was continued because, clinically, the patient was improving. Bishydroxycoumarin therapy was started on Nov. 2. The pain and swelling increased, and, on Nov. 5, a cut-down was performed on the right leg. On Nov. 3, the ristocetin dosage was decreased to 2 Gm. daily, and therapy with this drug was discontinued on Nov. 11. The right leg also became acutely tender along the saphenous vein, and marked swelling occurred. The thrombophlebitis subsided slowly, and the patient remained febrile until it resolved. Erythromycin therapy was continued until Nov. 27, but it had no apparent effect on the temperature course.

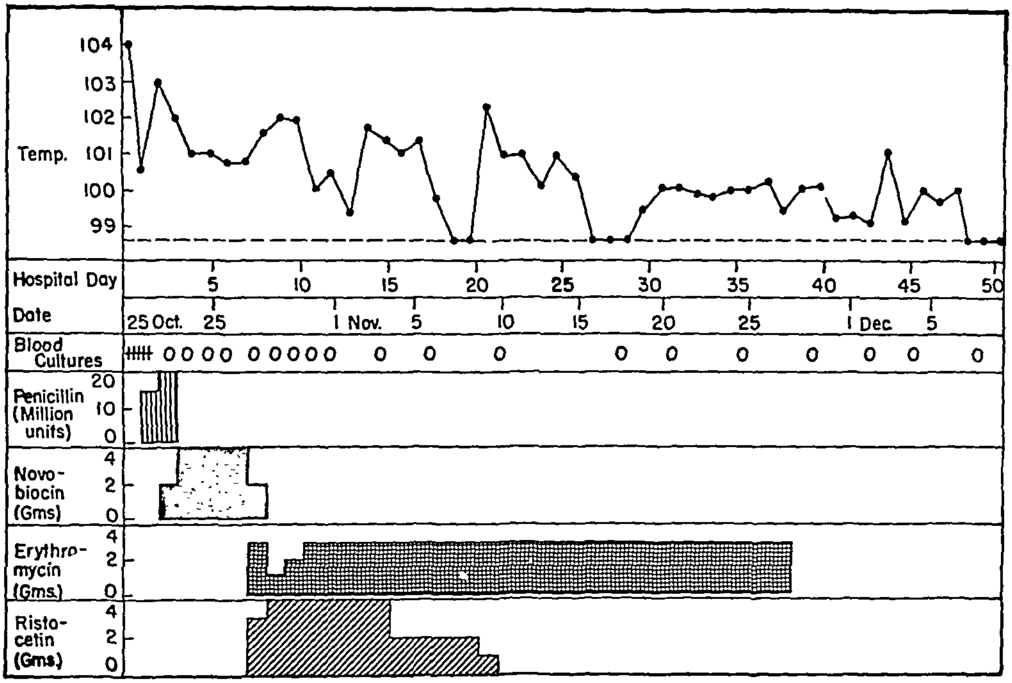

Fig. 3 (case 2).—Temperature curve of patient with staphylococcic endocarditis treated with penicillin, novobiocin, erythromycin, and ristocetin.

A total of 42 Gm. of ristocetin was given to this patient. Serum concentrations of this antibiotic were determined on four occasions, four hours after administration of the drug. Staphylococci previously isolated from this patient, with known sensitivity to ristocetin, were used in determining the serum concentrations. Serial dilutions of the serum were tested to inhibit growth of this organism. The ristocetin serum levels were 793.6 mcg. per cubic centimeter on Oct. 30, 198.4 mcg on Nov. 1, 49.6 mcg. on Nov. 4, and 396.8 mcg. on Nov. 7.

The white blood cell counts are shown in figure 4. On Nov. 11, she received a single injection of 80 units of ACTH gel intramuscularly. She received no medicaments except erythromycin after this. Hemoglobin level and platelet count, determined daily, remained unchanged from normal.

The systolic heart murmur decreased to grade 2 in intensity. After her discharge from the hospital, she was examined on Dec. 20, 1957, and Jan. 15 and Feb. 4, 1958. Fever and symptoms did not return, and she began working regularly as a medical technician on Jan. 15. On this date, the sedimentation rate was 10 mm. per hour and the white blood cell count was 13,320 per cubic millimeter, with 67% neutrophils.

The previous administration of various antibiotics and steroids initially confused the clinical picture, interfering with establishment of the correct diagnosis. Dermatomyositis was considered, but the absence of physical findings and the subsequent clinical course did not support this diagnosis.

The staphylococcic infection in this patient may have originated from various sources, but at least a "hospital organism" seems involved. Prior to her operation, she had been employed as a medical technician in a large general hospital and could have acquired colonization with hospital strains of staphylococci. The abscesses which developed in the antecubital fossa most likely indicate the site and the source of the staphylococcic bacteremia which resulted in the endocarditis. The history of probable rheumatic fever suggests that the infection occurred on a previously diseased heart valve. A changing aortic systolic murmur and the peripheral emboli would further indicate the aortic valve to be the site of the endocarditis.

Novobiocin had not been administered to this patient previously. Sensitivity studies suggested that this antibiotic could be given in effective amounts. The erythematous rash, fever, and nausea and vomiting which occurred after four days forced discontinuance of this antibiotic. Because of the experience in the previous patient with administration of erythromycin alone, therapy with both erythromycin and ristocetin was started simultaneously. The patient was acutely ill at this time and had numerous petechiae. The clinical improvement which followed warranted the continuation of ristocetin therapy despite the appearance of severe phlebitis in the injected veins.

The persistence of fever despite negative blood cultures was quite disturbing. Clinically, the patient improved dramatically, and laboratory tests substantiated this observation. Fever probably resulted from a combination of the leukopenia and severe bilateral thrombophlebitis. After these improved, she became and has remained afebrile.

Comment

The problem of hospital-acquired staphylococcic infections is well recognized, and the necessity for new antibiotic agents in the treatment of these infections is unquestioned. It would also be desirable that such an antibiotic be reserved for use only in the more serious staphylococcic infections. Ristocetin, therefore, seems to be ideal in meeting this need. The necessity for intravenous administration, the occurrence of thrombophlebitis, and the accompanying striking leukopenia should assure the infrequency of its use in treating less serious infections.

Leukopenia and neutropenia have been reported after the use of ristocetin.[4] Eosinophilia occurring before the leukopenia appears has also been described, but, in these two patients, eosinophilia did not appear until the patients were recovering from their leukopenia. It should be noted that the leukopenia occurred in both instances 15 days after starting therapy with this antibiotic and two days after it had been discontinued. Hemoglobin levels and platelet counts remained essentially unchanged from the values noted before steroid or other therapy was instituted.

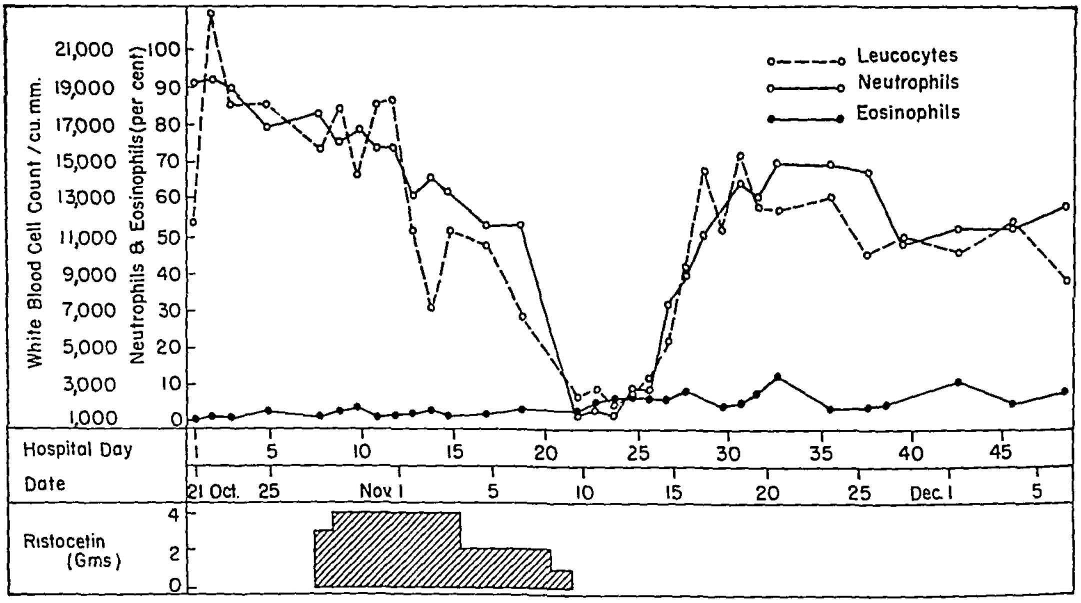

Fig. 4 (case 2).—Effect of ristocetin on leukocyte, neutrophil, and eosinophil counts in patient with stapylococcic endocarditis.

Summary

In two cases of hospital-acquired staphylococcic bacterial endocarditis the patients were treated with ristocetin and erythromycin, with clinical and bacteriological cures. Severe leukopenia and neutropenia occurred in both patients after the use of 44 and 42 Gm., respectively, of ristocetin in 13 days. The hemoglobin levels and platelet counts remained normal. The white blood cell counts gradually returned to normal limits.

Thrombophlebitis also developed in both patients during the intravenous administration of the antibiotic. The thrombophlebitis was severe and was responsible for persistence of fever in one of the patients. Ristocetin is a valuable antibiotic in the treatment of serious hospital-acquired staphylococcic infections.

Kathryn Rodecker, M.A., performed the bacteriological studies.

The ristocetin used in this study was supplied as Spontin by Abbott Laboratories, North Chicago, Ill.

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COUNCIL ON INDUSTRIAL HEALTH

SOME MEDICOLEGAL ASPECTS OF OCCUPATIONAL DERMATOSES

This is the fourth in a series of reports prepared by the Committee on Occupational Dermatoses of the Council on Industrial Health, American Medical Association.

B. Dixon Holland, M.D., *Secretary.*

Despite the fact that remarkable strides have been made in preventive medicine and that with few exceptions occupational diseases are preventable, thousands of occupational dermatoses claims are compensated each year. Differentiating industrial skin diseases from clinically similar skin disorders occurring in ordinary life is a major problem in itself. Even more troublesome to the physician are problems arising from the medicolegal aspects of compensation. In all likelihood, these difficulties will continue to grow rather than decline, particularly in view of the increasingly complex number of contact agents being handled in industry. The American Medical Association Committee on Occupational Dermatoses, therefore, considers it timely to review some medicolegal aspects encountered in occupational dermatology. Although most physicians have had to deal with compensation matters, there still remains a great need for educating the profession in this field.

The first workmen's compensation law in the United States was passed in 1908 by the federal government for the benefit of certain civil employees, and in the states in 1911. The early laws afforded no specific coverage for occupational diseases. At the present time, all states compensate for occupational accidents and all but two states provide for total or limited coverage of occupational disease. Eighteen states and Puerto Rico have schedule laws which cover only listed diseases, while the rest of the jurisdictions provide for full coverage.[1] Under full coverage laws industrial dermatitis is subject to the same compensation provisions as other occupational diseases. However, laws with schedule coverage of occupational diseases tend to limit the types of industrial skin diseases considered compensable or define the agents which must produce the disease.

The object of workmen's compensation is to assure payment to the worker for wages lost and certain related medical costs because of injury or illness incurred on the job, regardless of who is at fault, and to rehabilitate the patient as well as possible. The compensation laws vary considerably from state to state in scope, coverage, and benefits. Likewise, there is a lack of uniformity in the interpretation and application of such laws. This lack of uniformity creates many problems in the litigation of an injury and illness including dermatitis incurred from work.

Among the many legal definitions for an occupational disease is: "An occupational disease is one peculiar to the occupation in which the employee was engaged and due to causes in excess of ordinary hazards of employment as such."[2] Sappington[3] has defined an occupational disease as "one which

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The members of the Committee on Occupational Dermatoses are Drs. Donald J. Birmingham (Chairman), Cincinnati; Leonard Weber (Secretary), Chicago; Frank C. Combes, New York; A. Fletcher Hall, Santa Monica, Calif.; James W. Jordan, Buffalo; George Morris, Boston; and Ray O. Noojin, Birmingham, Ala.

occurs with characteristic frequency and regularity in occupations where there is a specific hazard as the cause which operates to produce effects in the human body recognized clinically by the medical profession as pathologic changes and effects produced by the specific occupational hazard involved."

An occupational dermatitis has been defined as an inflammatory condition of the skin incidental to one's occupation. Broadly, this definition would include the housewife's dermatitis, the gardener's plant poisoning of the skin, and the architect's dermatitis from his teakwood ruler. Actually, an occupational dermatosis is any abnormality or pathological condition of the skin due to occupation. These definitions seem fairly simple, but the industrial physician, even the dermatologist, may have difficulty in determining whether or not the cause for a given cutaneous eruption is of industrial nature.[4]

It is important that the practicing physician familiarize himself with the compensation law in his own state as well as with the peculiarities associated with particular compensation problems in occupational dermatoses. For these reasons, we have deliberately chosen to elaborate on certain topics of current interest in order to emphasize their relationship to legal aspects of an occupational skin disease.

Sensitivity

An interesting problem is presented by the employee who, by reason of his occupation, has developed a specific sensitivity to a certain substance which makes him unfit to continue his trade, although his condition is not such as to disable him physically. In one case,[5] the claimant had been disabled by a dermatitis from September, 1932, until April 12, 1933, when he returned to his occupation. On June 14, 1933, he was told that he could work no longer on account of his sensitivity. He then was awarded total disability by the industrial accident board. The court decided that, although the original eruption had disappeared, the employee's skin had never returned to normal; testimony in the record was sufficient to justify a finding of "disability as to the particular employment, but not as to employment in general. It was the duty of the employee to try to get other work."

Claims for permanent disability from sensitization are now plaguing the courts. One such set of claims due to sensitization from chrome compounds among railroad workers employed in the maintenance of diesel engines is of interest at the present time.

Another case[6] is reported in which a claimant sought a compensation award for permanent disability resulting from his sensitivity to cinnamon. From a denial of such award the claimant appealed to the U. S. District Court of Appeals, first district, division 1, California. He had worked as a baker since 1922, handling cinnamon without harmful results. In November, 1948, he was employed as a pastry baker. The following February a rash developed on his hands, becoming so acute that he quit work on March 10, 1949. The commission determined that he had contracted a disabling dermatitis which was caused by sensitivity to cinnamon and gave him temporary total compensation.

The condition disappeared in April, and he went to work as a baker for another employer. After three days the condition reappeared, and a few days later he was again forced to quit work. After a short period of rest the condition disappeared. Twice later he went to work for other employers and after extremely short periods of employment again broke out with a dermatitis due to his sensitivity to contact with cinnamon. Each time he received total compensation, each time his dermatitis cleared on cessation of contact with cinnamon, and reappeared on subsequent exposure. He then filed his petition for a permanent disability rating. At the hearing before the commissioner the claimant submitted the reports of five physicians, one of whom was his personal physician. All agreed substantially that at that time he was sensitive to cinnamon and that his exposure to it produced a dermatitis. None of the physicians other than his own reported on the permanency of this sensitivity. The only medical evidence in the record is the following report of his personal physician: "Because this skin test is still positive to cinnamon, the patient would still be unable to work as a baker without having a recurrence of his skin eruption as long as he contacts cinnamon. This skin sensitivity to cinnamon will probably remain for an indefinite period of time, but it is impossible to know how long such a sensitivity will remain."

On the basis of this evidence the claimant then contended on appeal that the commissioner erred in finding that the claimant suffered no permanent disability. After pointing out that whether the injury was permanent at a particular time was purely a question of fact and that the burden of proof was on the claimant to show that his sensitivity to cinnamon was permanent, the court of appeals said that it was a fact that on four different occasions since 1949, when exposed to cinnamon, dermatitis developed, and all the physicians agreed that the claimant is now sensitive to cinnamon, and exposure to it at present will result in dermatitis. These facts alone, continued the court, do not establish that such condition will continue for the balance of his life or meet the test of permanent disability. A disability is generally regarded as permanent when further change, for better or worse, is not to be reasonably anticipated under usual medical standards. The court of appeals affirmed the denial of an award by the compensation commissioner.

In another case,[7] the workman, about 41 years of age, was employed from 1935 to August, 1940, in the gasoline and petroleum products bulk station of the defendant corporation unloading gasoline from tank cars and loading gasoline into trucks. Sometime after entering his employment he developed a dermatitis which did not result in disability. In the summer of 1939 an eruption developed on his hands, arms, and face; it was diagnosed by a dermatologist as an allergic dermatitis due to contact with gasoline and he was treated at intervals for about two months. On April 27, 1940, he again developed an eruption on his hands, and was again treated until June 22, 1940, when the eruption was pronounced as cured. He continued at his regular work until Aug. 31, 1940, when the employment was terminated by the employer because the workman "was allergic to gasoline poison." He instituted proceedings under the workman's occupational disease act of Indiana for compensation, "alleging that in the performance of the duties of his employment . . . he was exposed to an occupational disease and that he is afflicted therefrom with 'gasoline poisoning-dermatitis-due to gasoline poisoning.'" The industrial board found that the workman contracted an occupational disease by reason of his employment, that he was totally disabled from that disease on Aug. 31, 1940, the date his employment was terminated by the employer, and that he was totally disabled from that date until the hearing before the board, some four months later. An award of compensation was made accordingly in his favor, and the employer appealed to the appellate court of Indiana. Applying the facts in the case, the court concluded that the finding and award of the industrial board was erroneous. The workman was not disabled on the 31st day of August, 1940. When his employment was terminated on the latter date he suffered no disability that caused any loss of time or wages or that would entitle him to be designated as disabled under the act. "It is possible that the allergy still exists, but a fair interpretation of the act leads us to the conclusion that a mere allergic condition from which some affliction might develop was not contemplated in the act." The award in favor of the workman was accordingly reversed.

In another case [8] occupational dermatitis was considered an accident. A workman in New Mexico instituted suit under the workmen's compensation act against his employer and the employer's insurer for an injury alleged to have been accidental and to have arisen out of and in the course of his employment as a printer. The trial courts found that in the course of his employment it was necessary that he cleanse his hands frequently with a soap furnished by the employer. The court found that the use of the soap would not have caused injury to the workman except for his allergy and that the resulting injuries constituted an unlooked for mishap which was neither expected nor designed and which was accidentally caused. Accordingly compensation was awarded the workman, and the employer and the insurer appealed to the Supreme Court of New Mexico. The employer and insurer denied that the disability suffered by the workman was accidental because, so they contended, the so-called injury was not related to any specific time or event, a necessary fact to be found, so they asserted, to support a judgment in his favor. The New Mexico statutes, answered the Supreme Court, not only do not define the word accident but do not undertake to limit its meaning to "sudden" injuries as do those of a number of the states, nor is its meaning limited by any time test. Accidental injuries, continued the court, are usually sudden happenings; and the time, event, and circumstances can be definitely determined, but there are exceptional cases in which injuries are unquestionably accidental, although the precise time of their beginning is uncertain, such as those caused by breathing dust or gases, frost bite, slow poisoning, or a series of slight injuries culminating in a serious one. An injury may be gradual and progressive, and not immediately discoverable, yet certainly and definitely progress to discovery and then to compensable injury. Such was the injury to the workman in this case. The time did arrive when his injuries totally disabled him so he could not work, and at that time he became entitled to compensation for total disability. The washing of the workman's hands was a necessary part of the labor for which he was employed. His injury, therefore, arose out of and was suffered in the course of his employment, and, if accidental, it was compensable. It comes under the classification: an injury that was the unintended result of an intentional act; received while performing his labor under the usual and ordinary conditions of his employment. The plant soap was a poison to the workman, and his injury was compensable. The judgment of the trial court in favor of the workman was accordingly affirmed.

New Injury or Recurrence

In Massachusetts the board has certain fixed ideas regarding medical aspects of occupational dermatoses. Conspicuous among these are the words "new injuries" and "recurrences." If a man suffers a disability from an injury caused by an industrial dermatitis, he is entitled to compensation. If this dermatitis is relieved so that there are no clinical evidences of it remaining, and the man returns to work, any subsequent outbreak due to further exposure is a new injury and the liability should be assumed by the insurer of the last concern by whom he was employed. If, however, the worker returned to work while the original dermatitis was still present and as a result of this work he has an acute exacerbation of his previous dermatitis, then the company who insured the original employer is liable for compensation for disability resulting from this later renewed activity of the occupational dermatitis. It is on these apparent primary facts that many hearings are held at the industrial accident board and as many as three or more insurers may be involved in one case.

Appeals must come to the superior or supreme courts on questions of law and not on questions of fact. Legal representatives of employers and employees go to considerable expense and trouble in an effort to establish definite rules of law for general guidance in the handling of workmen's compensation cases. As a result of decisions made the industrial accident board has tried to adhere to the rule that once an employee is relieved, that is, shows no clinical evidence of his dermatitis and returns to work, any subsequent outbreak is a new injury for which the liability rests on the insurer of the employer at the time of the second attack, whether or not he is the original insurer.[9]

There were, however, three decrees of the State Supreme Court of Massachusetts concerning cases in which the employees, after having received compensation from the insurers of their employers, went to work for other employers where they were subjected to irritants and became disabled again, and where the industrial accident board had held the original insurers liable for the compensation. The Supreme Court reversed these decisions and said that in each case there was no evidence that the subsequent attacks of dermatitis were due to the original exposure rather than the later contact with irritants, the latter being an independent intervening cause which broke the chain of causation between what happened originally and the disability in question.[10] A fourth case contained evidence of a conflicting nature; upon practically every point again the board held the original insurer liable. This time the court sustained the board and decided that the evidence warranted a finding that the original dermatitis never cleared up and that, since there was no evidence to show that the further exposures affected the original condition, the rule laid in the previous cases was not applicable.[11]

Inasmuch as the annual workmen's compensation insurance premiums of an employer are influenced by the amount of money paid as benefits under the act, there is an incentive for concerns to throw back the liability onto a previous insurer. As opinions of the physicians and resulting decisions must depend almost entirely on the statements of the claimant and others, it is here that we often listen to testimony of apparently prejudiced witnesses. When we ask a private patient, not seeking compensation or redress for his dermatitis or eczema, the duration of his eruption he may unhesitatingly say "years." However, careful analysis reveals that it may be periodic or may have cleared at various times only to reappear days, weeks, or months later. So the employee seeking compensation may truthfully state his eruption has been present since the original onset. He may believe he has been poisoned, and it is in his system; hence, the value of a careful history, and also the supreme necessity of treating a patient until every vestige of the dermatitis has disappeared for a reasonable period. It is also important because, if a patient's skin is thoroughly healed, he is more apt to remain well when he returns to work. If a man's former work involved contact with sensitizers which led to a dermatitis, then he should be advised not to return to that work. If he has been injured by a recognized primary irritant he should avoid that substance or handle it with proper respect, so that he can frequently return to his former occupation with impunity.

There would be fewer disputed cases before the industrial accident board if the courts accepted the fact that the compensation act provides for disability only. What holds for a strained back should also hold for an occupational dermatitis, as was demonstrated in Borstel's case, 307 Mass. 24, where the Supreme Court ruled that, despite the fact that the man had previous injury to his back, the final act which produced disability was his work at his last place of occupation, and therefore found that the last insurer should assume liability. However, the chief objection to this is that it would be absolutely necessary entirely to relieve a patient from his occupational dermatitis before he resumed any type of work, and would result in employers refusing to accept or hire an individual suffering from any type of rash. This would, of course, prevent numerous workers from resuming work, for there is no question that a slight eruption does not always disable an individual from doing work that does not involve contact with irritants. Therefore the board continues to rule on the particular facts in each case individually, and the State Supreme Court treats each case on its own merits. There is no uniformity —perhaps not even any consistency—in the decided cases.

Aggravation

Aggravation of preexisting disease through an occupational injury should be compensated only for the period of time during which the aggravation is actually and entirely caused by the injury. One should try to determine the disability due to the compensable injury and that which is due to the preexisting disease. If the patient stops work, and if the effect of the injury on the preexisting dermatosis has been eliminated, and if treatment has resulted in relief of the superimposed occupational dermatitis, compensation is no longer justified. The problem becomes still more involved if the preexisting disease, such as psoriasis, is a progressive one. The difficulty then is to decide when the preexisting disease has reached the stage which it would have reached without the influence of an injury. During this period the disability is also progressive. There may be no justification for further compensation because the role of the occupational dermatitis as a contributing factor has ceased—however, most of these cases are awarded compensation for the entire disability, primarily because of conflicting testimony as to when, if at all, the aggravation has ceased.

Apparently no hard-and-fast rule or formula can be applied to the word aggravation. The exact conditions of each individual case produce a decision peculiar to that case. From a large number of such cases, however, certain concepts with wide border lines may be derived. If a workman has had psoriasis for many years prior to engaging in an occupation, during the course of which his psoriasis has become worse, so severe that it involves his hands with a result that he has been unable to continue at that particular occupation, which may or may not be an aggravating factor, he usually sues for compensation. He claims that the disability which eventuated was an industrial injury.

In such a case in Massachusetts psoriasis of the palms developed in an edge setter after he had been working for 10 years. In the performance of his work, the edge setter painted the edges of the soles of shoes with a blacking compound and then pressed the edges against an electrically heated, vibrating iron. About six months after the onset of the eruption on the palms, psoriatic areas also developed on the plantar surfaces. The edge setter was examined for the insurer, and an opinion was expressed that the condition was psoriasis not of occupational origin. The decision of the Massachusetts Industrial Accident Board on his claim for compensation was that "the employee . . . sustained an injury that arose out of and in the course of his employment" and that "as a result of this injury he was totally disabled for work" for 13 weeks. Fourteen years later, this same worker was again referred for examination and opinion, this time by a different insurer for a different employer. Although there had been some variations in the intensity of the eruption, it had never been completely clear during this interval of time. The edge setter worked for the first employer for about two years after the first industrial claim. Thereafter, he worked for six different employers, doing essentially the same type of work. The Board describes the interval of approximately 13 years in these words: "The employee has persistently pursued the same type of employment in the shoe industry, namely, edge trimming and edge setting, and notwithstanding that he has suffered intermittent repeated exacerbations and remissions of cracked and swollen hands, principally on their palmar surfaces, with rash, scaling, and redness, when the condition was acute and severe. . . ."

A dermatologist called as a witness by the employee at the last hearing testified that "the work as an edge trimmer and edge setter aggravated the basic condition of psoriasis." One impartial dermatologist expressed the opinion to the Board that the employee "has an eruption which is psoriasis," and that this is "a constitutional disease in which trauma 'can be' the 'initiating' cause"; he also believed that "continued work handling stains, shoes, and other ingredients 'could' aggravate his (the edge setter's) psoriasis." Another impartial dermatologist consulted by the Board expressed the opinion that "the condition which the employee suffers is psoriasis and is in no way causally related to his employment at any time." The full Board, in their findings after review, made the following statement:

> We prefer to follow the opinion . . . that the condition which the employee has suffered is one of psoriasis, a nonindustrial disease, that such disease has not been aggravated by any of the employments against which claim is made on the record. . . . We find that the employee has not sustained the burden of proving that he has received a personal injury arising out of and in the course of his employment in the service of any of the employers against whom claim is made subsequent to the 1936 episode. We find further that the employee's incapacity beginning on September 9, 1949 is not causally related to his 1936 injury.

Here apparently are diametrically contradictory opinions by the same Board for the same employee, suffering from the same and continuing condition of psoriasis while engaged in the same industry. The two hearings differ from each other in that different employers are involved; they also differ in a matter of jurisdiction regarding one of the employers because of location in another state.

Appel[12] states that an analysis of a large number of industrial dermatitis cases in which the factor of aggravation played an important part permitted all the cases to fall into one of the following five categories: industrial dermatitis (1) aggravated by a supervening nonindustrial condition; (2) aggravated by a supervening other industrial condition arising out of and in the course of employment for the same employer; (3) aggravated by a supervening other industrial condition arising out of and in the course of employment for a different employer; (4) aggravated by a preexisting nonindustrial condition; (5) itself aggravating a preexisting nonindustrial condition.

If a patient is accepted as being disabled as a result of aggravation of his nonindustrial dermatitis, then the physician must try to discriminate between the natural development of the nonoccupational eruption and the disturbances caused by the injury received at work and should be able to determine when the results of the aggravation have ceased and only the preexisting disease remains. If the patient had suffered from a clearly defined systemic cutaneous disease, such as psoriasis or syphilis, this decision is fairly easy. For example, if a man suffers an injury to his leg and then develops a localized patch of psoriasis, he should receive treatment only until this patch is relieved. The same is true regarding a gumma resulting from injury. However, such an injury as in the case of the loss of the sight of both eyes in a patient with syphilis might result in total permanent disability.

The latter was shown in the case of Nicotra vs. Bigelow, Sanford Carpet Co. (Conn., 189 A.603).[13] The claimant, while at work cleaning the inside of a metal tank with an electric brush, complained to a fellow worker that something had got into his left eye. Shortly afterward the claimant reported to the plant surgeon, who found some pieces of foreign matter in the eye, which he apparently removed. The claimant, however, continued to insist that there was still something in his eye, and during the next several months he received treatment from various physicians but obtained no relief. Eventually be became totally blind in his left eye. Vision in his right was reduced to less than one-tenth of normal vision and the condition could not be corrected by lenses. During the course of treatment for his eye condition it was discovered that the claimant had syphilis and he underewent treatment for that disease. In a proceeding under the workman's compensation act of Connecticut, the commissioner awarded the claimant compensation and the employer appealed to the superior court, which remanded the case to the commissioner for the taking of further evidence. The claimant thereupon appealed to the Supreme Court of Errors of Connecticut.

The commissioner concluded that an injury which the claimant received to his left eye precipitated an optic neuritis in that eye and that atrophy of the optic nerve developed, resulting in total blindness in that eye; that sympathetically the right eye was affected by the injury to the left, so that the net results of the injury was that the claimant was industrially blind in both eyes. The employer contended that it was error for the commissioner to receive the statement in evidence. The contention, the court said, overlooks the nature of the hearing before the commissioner. The law provides that the commissioner shall not be bound by the ordinary common law or statutory rules of evidence or procedure and is therefore permitted great latitude in the admission of evidence. The employer further contended that an award of compensation to the claimant was not permissible because the workmen's compensation act provides that in case of an accidental injury a disability or death due to the acceleration or aggravation of syphilis does not constitute a compensable injury. Under this provision, the court said, where the effect of the injury is to accelerate or aggravate the constitutional disease, no recovery can be had. In the present case the ultimate conclusion of the commissioner was that the injury which the claimant received because of his condition affected the optic nerve in such a manner as to result in loss of sight of both eyes. As the record supported this conclusion, the court said, the disability was compensable. The case was remanded to the superior court, with directions to enter judgment for the claimant.

Disfigurement

Another problem coming before the industrial accident boards is disfigurement. Previously it was considered not compensable. A case[14] was reported in which the claimant's face was badly scarred by acid, resulting in considerable disfigurement. He was not otherwise injured and instituted proceedings under the workmen's compensation act of New Jersey. The question as to whether or not disfigurement constituted a compensable disability eventually was presented to the Supreme Court of New Jersey. A reading of the several sections of the workmen's compensation act, said the court, clearly indicates a legislative purpose to provide compensation for disability which disqualifies an employee from doing work in whole or in part. In De Zeng Standard Co. v. Pressey, 86 N. J. Law 469, 92 A. 278 (affirmed in 96A.1102) the court said: "The disability intended thereby (the act) is a disability due to loss of a member, or part of a member, or of a function, rather than to mere loss of earning power." In that case it was claimed that if there was injury but no loss of actual wages there was no loss of earning power, and that this precluded an award. The court, however, refused to take this view, declaring that it was disability alone that counted, whether loss of physical parts or loss of function. In the present case the court said that the disfigurement and scars on the claimant's face may well deter employment and thereby lessen his earning power, but they in no wise impair his ability to work. If disfigurement, standing alone, is to be made the basis of compensation, it must be done by the legislature and not by an extension of the act by judicial construction. If and when such legislation shall be deemed desirable, the court said, the legislature can determine what types of disfigurement, marks, and scars, and on what portion of the face, head, or body, shall be considered, and within what limits and bounds awards of compensation shall be made.

However, Bear[15] later cites a case tried before the Massachusetts Industrial Accident Board, L. Hendricks v. Chesterfield Laundry Service Company. This employee was a 31-year-old woman who was operating a laundry pressing machine. A part of the machine weighing about 50 lb. shut down on her right forearm, burning her. She managed to free herself and then fainted. After treatment, a granulating surface was obtained. The large open surface was filled in with skin grafts. This graft took fairly well, except that where it crossed the wrist joint there was some stiffness and cracking due to the motion of the joint at that point. The important feature of the case, however, was that the patient was left with an extensive keloid formation, which disfigured her arm. The employee testified at the hearing that she was sent from an employment agency to two different families to do housework. The prospective employers kept looking at her arm, and the agency was notified after each interview that she had not been hired because the scar was considered obnoxious. The commissioner found that this constituted a disability and awarded compensation, which the insurer paid without appeal to the courts.

Patch Tests

Testimony concerning the value of patch tests at hearings before industrial accident commissions may be a great tribulation to a conscientious physician. He must perform and interpret the test himself; otherwise, it is hearsay evidence and therefore irrelevant. It is difficult for the physician to explain a negative reaction, when he is certain that the patch test did not simulate the conditions under which the employee's skin was exposed to the irritant. On the other hand he cannot explain an apparently positive reaction appearing at the site of the test, when it could be merely another patch of a spreading eruption that involved the test site. Lawyers and commissioners have difficulty understanding false-positive, false-negative, and delayed reactions to patch tests.

Among the legal questions which occasionally confront the dermatologist who investigates cases of industrial disease are those which arise when a patch test is performed that causes a severe and possibly disabling dermatitis. An opinion was requested from the Massachusetts Industrial Accident Board[16] regarding the liability of the physician to the claimant, the liability of the insurer to the claimant, and the rights of the claimant over the physician and the insurer. The Board's reply was intended to furnish helpful information and not to set forth the law.

On June 14, 1940, Mrs. F. at her employer's request removed a ladder from under considerable brush. In so doing she was showered with a pollen-like substance, which covered her head, face, neck, and arms. That night her face grew red and itchy and later burned. The next day it was erupted and swollen. She received medical treatment and was confined to the house for seven weeks. Even after that time itching and burning continued, and red patches appeared on her face whenever it was exposed to heat. When first examined on Aug. 20th, her skin was normal except for slight erythema of the face. She was accompanied by an inspector of the Massachusetts Department of Industrial Accidents; he brought with him specimens of four plants like those with which the patient came in contact and requested patch tests. These tests were performed on the flexor aspect of the left forearm with a minute piece of each plant. Within a few minutes the patient complained of itching, and an area of redness was observed surrounding the test piece of a plant called by the patient a Chinese plant. Despite removal of the substance and cleansing with soap and water and alcohol, the redness continued to spread and covered an area 4 in. (10 cm.) square. The other patch tests were negative. On Aug. 21st the patient returned with a dermatitis of the left forearm.

The results in the above case aroused interest anew in certain legal questions to which such results give rise. Is one justified in performing a patch test that may cause an aggravation or, if the patient is well, a new and disabling dermatitis? Is the one who requests the test or the one who performs it liable for such disability? Should the consent of the insurer to the test be secured as well as that of the patient? Was one justified in undertaking treatment of the patient during the illness that ensued? Who should pay for this treatment, the state or the insurer? If the patient had been disabled by the dermatitis caused by the patch test, would she have been entitled to further compensation?

To a letter presenting these questions, the Board replied that since in performing the patch test the physician was acting under appointment by an administering board with legislative permission so to appoint and since it was a procedure generally endorsed by the medical profession, he should probably be immune from suit by the insurer and certainly immune from suit by the employee (as held by the Mass. Supreme Court in the case of Vatalero vs. Thomas, 262 Mass. 383). The Board pointed out that in view of its having appointed him, his position was neither that of physician to the employee nor physician to the insurer. As to the employee's right to further compensation for an aggravation and extension of the original dermatitis, the Board cited the fundamental principle that the insurer is liable for all the consequences which flow "as a rational result" from the original injury. Among these consequences it included any conditions resulting from examination and treatment by any physician, whether impartial or employed by the employee or insurer, provided that these were properly conducted and were recognized procedures. In connection with the Board's reply, a private legal opinion was solicited while the patient was still under treatment. This opinion was that there is no liability on the part of a dermatologist unless he is negligent in treatment and that he is therefore under no obligation to obtain permission from any one to perform a patch test. In the case of a subsequent eruption, it was held, the insurer would be liable for disability, if any, since examination by an impartial physician is provided for under the Workmen's Compensation Act.

Cost

A dermatitis case can be quite expensive. The following case, while somewhat unusual, illustrates this point and also directs attention to one of the principal causes of prolonged dermatitis—overtreatment. On Oct. 18, 1949, a man 50 years of age was referred by an insurance carrier for examination of a dermatitis resulting from contact with cutting oils used in his work as a metal worker. The eruption started the previous April on the anterior aspect of the thighs, later involving the wrists and forearms. In December, 1949, he was referred back for therapy, for his eruption had become generalized in spite of x-ray therapy, injections of penicillin, and various other medication. He was hospitalized with marked improvement, although the pruritus persisted. Contrary to advice he continued using various home remedies. In October, 1951, at the request of the insurer he was seen at a suburban hospital where his own doctor was treating him. A month later a local physician referred him to a large teaching hospital. Here he was placed under the care of an internist who was specializing in steroid therapy, which was then both experimental and very expensive. Cortisone therapy was started on Dec. 2, 1950, and he remained on steroid therapy under the care of this internist until a short time before his death on Nov. 16, 1954. At first he made excellent progress as regards his skin, but he soon showed untoward reactions each time the drug dosage was lowered or withdrawn. He had a total of 14 hospital admissions. The total medical cost in this case [17] was reported to be $34,014.25. The compensation paid over a period of five years was $8,758.57. His widow 54 years of age is now being paid $15 a week for life, so that another $15,600 expenditure is expected, making a total of $58,000.

Rehabilitation

For an employee, disability creates a problem which will vary in degree according to the occupational or nonoccupational character of the ailment, the age of the worker, the length of time in the particular trade, and the accumulated seniority within the company. If he or she is a beginner in the employment and if the trouble is ruled as work-associated, the illness is covered by compensation. In such a case transfer to another department or separation from the job will not cause loss of the higher wage scales gained after long experience.[18] However, when a man has learned a highly specialized trade, such as engraving, and he becomes disabled because of skin irritants, he is of no value to his employer or to others in any job involving contact with skin irritants. Although he is compensated for this episode, he still faces the penalty of a lowered income. This results from the necessity of a plant transfer to another job in which he has no trained skill, or severance from the position in which he has developed efficiency and seniority. Lost time which is not covered by any type of benefits can be catastrophic to him and his dependents.

The trained artisan will frequently, and with some justice, decide that his disability, no matter how slight, has a certain monetary value. Workers may demand a high price for a dermatitis of one finger which does not disable them from ordinary work, but may eliminate them from their trade. They are apt to prolong this dermatitis until they are given a lump sum settlement, with the result that the patient is not so much interested in his physician's effort to restore him to work as he is in his financial settlement. On the other hand, occasional attempts may be made to deny a worker's just claim or to settle a claim more cheaply in a lump sum which terminates an employer's liability for compensation.

Lack of rehabilitation services and inadequate medical care may result in prolonged disability and unnecessary loss of gainful employment, as well as an occasional neurotic, permanent invalid. After the acute disabling symptoms of occupational dermatitis are relieved, work away from contact with irritants should be found. Rehabilitation through vocational training may be necessary.

This aspect of disability is relatively new as compared to the problems of prevention and compensation of occupational dermatoses. There is no uncertainty about its importance, because rehabilitation provides a means of reestablishing the vocational and economic usefulness of the skilled worker who, by virtue of his cutaneous susceptibility, must change type of work. Real recognition for the need of rehabilitating the disabled workman is evident, for at this time about 23 states have certain provisions dealing with rehabilitation. When physicians are confronted with the need for rehabilitation of a patient with a dermatosis, they should confer with the employer and the insurance company or consult their state departments of health, or workmen's compensation office, or departments of labor to ascertain whether a rehabilitation activity is available within the state.

Conclusions

It is the duty of all physicians to care for the sick. Workers suffering from occupational dermatoses are sick and need proper care. Some specialists have been reluctant to take compensation cases. They claim they are ignorant of the law, lack medicolegal training, fear legal interrogation, and believe the fees are so low that expenditure of their time is not properly compensated. If a physician undertakes the care of the patient, it is his duty to appear and testify. Knowledge of the workings of the compensation act is desirable. The physician should realize that he is not beholden to anyone. The position of the dermatologist is that of a physician trained in the diagnosis and treatment of cutaneous disturbances. He has sufficient knowledge to recognize whether or not it is systemic in origin, or due to extrinsic factors. If due to the latter, and a careful history reveals the probability of occupational factors, an honest statement of the facts can withstand any direct or cross-examination to destroy his opinion. If a careful history narrows the field of probable causative factors necessitating the aid of the patch test, the dermatologist should not hesitate to employ such diagnostic aids.

His testimony should be independent of his lawyer, the plaintiff, or the defendant; in court he is not an agent of either, but subject only to the ethics of his profession. He should not be partial or prejudiced to either side. Antagonism by a lawyer for either side is quickly recognized (and usually remedied by the presiding officer) and often is a deciding factor in the decision. The physician should be able to recognize the extent of disability and the prospect of the worker's recovery. Proper cooperation between the dermatologist, the employee, the employer, and the compensation administrator will help to reduce the number of controversial cases. The intent of the compensation act is just and humane and is entitled to the cooperation of all concerned.

The Committee wishes to express thanks to Mr. Joseph Bear for his review of the legal questions involved in this paper. The Committee also wishes to acknowledge the contribution of Dr. John G. Downing, former Chairman, in the preparation of this paper.

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COMMITTEE ON MEDICOLEGAL PROBLEMS

INTERPRETATION OF TESTS FOR INTOXICATION

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This report is chapter 6 from a manual, being prepared by the Committee on Medicolegal Problems, dealing with medical and legal procedures involved in the use of chemical tests for intoxication.

Popular beliefs regarding the effects of alcohol do not agree with the scientifically conducted observations. We have all heard of the mythical individual who "smells the cork" and becomes dead drunk, while another is cold sober after downing a "fifth." Actually the startling fact is that alcohol affects human beings in a surprisingly uniform manner when we measure, not how much the person drinks, but how much he accumulates in his body fluids. This uniformity is demonstrated by observing that the threshold for measurable effects of alcohol usually occurs at a blood alcohol level of about 0.02 to 0.03%, indicating the accumulation of 0.4 oz. (12 cc.) to 0.6 oz. (18 cc.) of pure alcohol in a 150-lb. (68-kg.) person. The fatal dose also is no respecter of persons. When a person accumulates enough alcohol to have a blood level of 0.6%, his most primitive nerve functions are interfered with and he dies.

Evaluation of Tolerance

It is true that habituation to alcohol alters these figures slightly, but the importance of tolerance has been greatly overrated. While the tolerant person may be able to drink more than the novice, the two will be about equally intoxicated when they accumulate the same amount of alcohol. The tolerant individual may eliminate his alcohol faster and absorb it slower. It is also possible that what we regard as tolerance may actually be an ability, acquired by practice, of hiding some of the symptoms of intoxication. For example, the often intoxicated individual may have learned to talk softly, to enunciate clearly, and to drive with exasperating slowness. It should therefore be understood that the chemical test for alcohol is just, since it measures not how much the person drank but what he accumulated, and it is the accumulated alcohol that causes intoxication.

If the above statements are true, why then are we confronted with apparent contradictions? How can we explain that, of two persons of about the same age, height, and weight, both charged with driving while intoxicated, both having 0.15% alcohol in their blood, one is polite, cooperative, and well oriented while the other is profane and combative? The explanation for this apparent paradox has been found by the testing of hundreds of individuals before and after taking alcohol. It can then be shown that there is a great natural difference in persons. The intelligent person accustomed to the successful handling of himself in difficult situations will appear to be less affected by alcohol than the scatterbrained person whose blood contains the same percentage. The experiments indicate that the two persons, though reacting differently, are about equally removed from their own normal behavior patterns.

It has therefore been suggested that the superior person be judged by a more lenient standard than that imposed on his less fortunate brother. We feel, however, that this attitude is not reasonable or feasible, since driving even without alcohol is such a hazardous occupation that any reduction in driving ability caused by alcohol should not be countenanced.

Effect of Suprarenals

Another interesting observation is that a person may have been obviously intoxicated, but when he is confronted by the police or being examined by a doctor suddenly appears to be sober. What has happened is that the realization of his predicament has caused his suprarenal glands to secrete large quantities of epinephrine, which temporarily counteract the effects of alcohol but not the percentage in his body fluids. When this person believes that the emergency has passed, he again relapses to his observable state of intoxication. This temporary, apparent sobriety can be compared to what happens to the sleepy individual whose house catches fire. As soon as he realizes what is happening he is wide awake.

When we consider the variety of symptoms, or even the temporary absence of symptoms associated with alcoholic intoxication, it is fortunate that we have available one constant finding which enables us to evaluate properly the role of alcohol as a factor in abnormal behavior. This was dramatically demonstrated by Halporn [1] when he was able to prophesy with surprising accuracy the percentage of alcohol which would be found in the urine of persons whom he had examined. His very worst estimate was 0.30% in a person whose actual percentage was only 0.18. Later on it was discovered that this person had a fractured skull, indicating that the chemical test was an even better diagnostic tool than the physical examination alone.

What Is Intoxication?

In order to interpret the results of chemical tests for alcoholic intoxication, it is obvious that we must define intoxication. This condition has been considered to be present according to some authors only when there has been obvious mental confusion and/or muscular incoordination, while others have considered that a person is under the influence of alcohol as soon as only slight measurable neurological deterioration can be demonstrated. The same person simultaneously examined by two doctors may be considered culpable by one and innocent by the other, depending on the doctor's criteria for intoxication.

It is obvious, then, that all arguments are fruitless unless we agree as to what is meant by "under the influence." We are in favor of any definition which adequately describes this condition and which can be used to convict the guilty and free the innocent. The same definition should apply in all states and preferably in all countries. At the present time we have many definitions of intoxication. To be guilty in California the individual must be so affected that he is unable to operate his vehicle in the manner of an "ordinarily prudent and cautious person in full possession of his faculties." Dr. Henry Newman correctly interpreted this to mean that a person should not be penalized unless the alcohol had lowered his driving ability below that of the poorest licensed driver on the road. According to this definition it is extremely difficult to prove intoxication. The California law exonerates the superior individual who in spite of some loss of his driving ability due to alcohol is still a better driver than most ordinary drivers.

On the other hand this superior Californian would not fare as well if scrutinized according to the laws of Arizona. Because of the difficulties of proving "under the influence" of alcohol, the National Safety Council and the American Medical Association have urged the adoption of the following definition of the Supreme Court of Arizona:

> The expression "under the influence of intoxicating liquor" covers not only all the well known and easily recognized conditions and degrees of intoxication but any abnormal mental and physical condition which is the result of indulging in any degree in intoxicating liquors, and which tends to deprive him of that clearness of intellect and control of himself which he would otherwise possess. If the ability of the driver of an automobile has been lessened in the slightest degree by the use of intoxicating liquors, then the driver is deemed to be under the influence of intoxicating liquor. The mere fact that the driver has taken a drink does not place him under the ban of the statute unless such drink has some influence upon him lessening in some degree his ability to handle said automobile. *Steffani v. State*, 42 Pac. (2nd) 615.

A. M. A. Recommendations

The following recommendations were agreed on by committees of the National Safety Council and the American Medical Association:

1. Although there is no minimal figure which can be set at which there will be absolutely no effect from alcohol, the committee recommends that persons with a concentration of alcohol of less than 0.05% by weight in blood or its equivalent in urine, saliva, or breath should not be prosecuted for driving while under the influence of alcoholic liquor.
2. Between 0.05 and 0.15%, a liberal, wide zone, alcoholic influence usually is present, but courts of law are advised to consider the behavior of the individual and circumstances leading to the arrest in making their decision.
3. At 0.15%, or above, there is definite evidence of "under the influence," since every individual with this concentration would have lost to a measurable extent some of that clearness of intellect and control of himself that he would normally possess.

These limits were purposely made liberal so that no injustice would be done to the person with unusual tolerance. In order to obtain a blood alcohol level of 0.05%, a 150-lb. (68-kg.) person would have to accumulate 1 fl. oz. (30 cc.) of pure alcohol in his body. To do this he would have to drink at least the equivalent of 2 oz. of 100-proof liquor. This same person would have to accumulate 3 oz. of absolute alcohol to reach a blood alcohol level of 0.15%.

The proper interpretation of chemical test results is based on an assessment of the relative importance of conflicting social values rather than the determination of scientifically established facts.

There is little doubt that some deterioration of human capabilities is observed at very low levels of alcohol concentration in the circulating blood. If this were evident a quarter of a century ago,[2] the more sensitive and carefully controlled experimentation of modern times[3] has only served to provide additional evidence that some measurable loss of human capacities occurs after only one of two drinks (blood alcohol levels of 0.02% to 0.03%). Thus, if we were interested only in maximum safety on the highway, we would adopt the rule, "If you drive, don't drink."

One of the cornerstones of our American way of life is the element of personal freedom, the maximum liberty of the individual to do as he pleases within the restrictions of majority-approved laws. When personal freedom is too rigorously trampled on by a restraining statute, our citizenry are likely to nullify the law by refusing to abide by its provisions. For this reason the value of any regulation depends on general public acceptance of its fairness. The fate of the 18th amendment to our constitution serves as a good example of this point. Thus, any reasonable regulation concerning drinking and driving involves a steering between the Scylla of blue-nose restriction and the Charybdis of extreme libertarianism.

It would seem that a fair degree of latitude of individual freedom is permitted if we bar only those drivers in whom the alcohol-induced impairment is material. By that is meant: noticeable to any alert observant citizen and manifested by obvious interference with locomotion or balance (standing, walking, or turning), speech (indicated by slurred pronunciation or blocking of speech), or orientation (as indicated by mental confusion as to time, place, or circumstances).

Leniency of Recommendations

Realizing the wide range of human variability and tolerance with respect to the effects of alcohol, it seemed only fair to establish two limits, a minimum or floor value and a maximum or ceiling value for the blood alcohol concentration indicating material impairment—the floor value to be that concentration below which the vast majority of persons demonstrate no material abnormality and the ceiling value to be that concentration above which all persons are materially impaired.

Such delineation of zones of no influence and definite influence in all persons would necessarily leave a rather considerable middle zone in which some persons might be materially impaired whereas others could be reasonably normal. This represents a doubtful zone between the two definite floor and ceiling values.

In setting out to establish reasonable and fair limits for alcohol influence, the question first asked was: "Below what blood alcohol concentration can we safely say that no person would be materially impaired in those factors which are essential for the safe operation of a motor vehicle?" Although delicate tests are able to demonstrate impairment at blood alcohol concentrations of 0.02% to 0.03%, it was agreed that material impairment by alcohol was not observed in any person until the blood alcohol level rose to 0.05%. So this was selected as a reasonable floor value.

The adoption of a defensible and fair ceiling value was made only after much discussion and some controversy. Because a noticeable impairment could be seen in the great majority of persons at a blood alcohol level of 0.11%, it was first suggested as a ceiling value.[4] However, there are a few tolerant persons (mostly habitual users of alcoholic beverages) in whom no noticeable degree of impairment can be seen at a blood alcohol level of 0.11%. But even these show observable impairment by the time a blood alcohol concentration of 0.13% has been reached. Realizing that not all persons had been tested and that somewhere some person might be found who was still more tolerant than any seen by American experimenters, and further recognizing the fact that even skilled analysts might differ in the measurement of blood alcohol values by a margin of ± 0.01%, it was decided to place the ceiling value at 0.15% in order to make allowance for these unknown factors.

Thus the 0.15% ceiling value is recognized as one which is inordinately high and extremely conservative—a deviation which was considered to be fair in the light of our tradition of justice, wherein it is believed to be better for a guilty man to go free rather than have an innocent one convicted.

These values recommended by the committees of the National Safety Council and the American Medical Association have been found to be preeminently fair and even generous.[5] In the countries of Western Europe the limiting values are more stringent. Norway and Sweden have adopted 0.05% as the blood alcohol limit which may not be exceeded by motorists. In Denmark, Germany, and France, the limit is one part per thousand or 0.10%. So the ceiling value of 0.15%, recommended in the Uniform Vehicle Code and adopted into the statutes of 28 of our states, is in keeping with our American tradition of permitting the maximum freedom for the individual which does not interfere materially with public safety.

Suggestions have been made that, in view of saving some of the 40,000 lives which are lost annually in highway accidents, the ceiling value be lowered to 0.05%.[6] This would be tantamount to forbidding any person who has in his body alcohol equivalent to two bottles of beer from driving an automobile. It is doubtful if such a rigid limit could be enforced.

A False Interpretation

All too frequently one finds that, where chemical tests for intoxication are employed, prosecutors or judges take the position that no person with less than 0.15% alcohol in his blood should be prosecuted, regardless of the symptoms of intoxication which he may manifest. This is a perversion of the intent of the chemical testing program. Certainly where indications of alcohol influence are evident and where no element of injury, illness, or medication suggests other causes for the driver's condition, the finding of a blood alcohol concentration in the questionable zone (between 0.10% and 0.14%) justifies the bringing of a prosecution for "driving while under the influence of intoxicating liquor."

Conclusions

It is, of course, understood that the blood alcohol concentration indicates the condition of the person at the time the test was taken. What his blood alcohol concentration was at the time of the arrest or accident can be inferred with reasonable accuracy if one can establish by interrogation the time of drinking (including the time drinking commenced, the time of the last drink, and the subject's best recollection of how much liquor was consumed). It has been argued that such extrapolations are conjectural and should not be admitted in evidence. But where the chemical test has been made within one or two hours after the arrest or accident, and facts concerning the drinking are established, courts have held such extrapolations to constitute the best available evidence and, or that basis, to be admissible.[7]

When chemical tests for intoxication are properly made and interpreted in accordance with the principles outlined above, they constitute the best and most impartial objective yardstick for the measurement of impairment by alcohol. Recognition of this fact led our highest court to state (of a blood alcohol test in a negligent homicide case) "The test upheld here is not attached on the ground of any basic deficiency or of injudicious application, but admittedly is a scientifically accurate method of detecting alcoholic content in the blood, thus furnishing an exact measure upon which to base a decision as to intoxication."[8]

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MEDICINE AT WORK

- *Big PG Course—Via AMA*
- *Rehabilitation Moves Ahead*
- *Medical Education Reports*
- *Session with 'Third Party'*
- *Extent of Group Practice*
- *Medicine's 'Up' Frontier*

✓ *SPECIAL REPORT IN DEPTH*
—The Troubled Employee

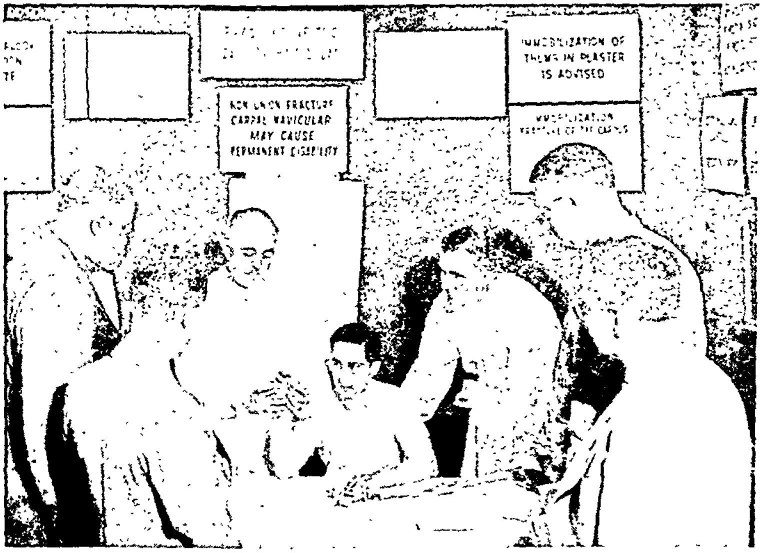
More People Prepay

"Public acceptance of the idea of preplanning and budgeting some of the costs of illness, injury and disability has been proved by the continued increase in enrollment under voluntary health insurance plans." That is the conclusion of a pamphlet issued recently by the A. M. A. Council on Medical Service as a supplement to its booklet, "Voluntary Prepayment Medical Benefit Plans."

Although the number of voluntary health insurance plans in the U. S., approved by medical societies, reached a peak of 84 in 1951, enrollment in these plans has continued to climb at an average rate of nearly 4 million yearly. Total enrollment neared 45 million by the end of 1957. On Dec. 31, 1945, it was less than 3 million.

The pamphlet says: "Growth in numbers of persons alone does not indicate the full story. The basis of payment of many programs has been expanded . . . and the amounts of many benefits have been adjusted so as to be more in keeping with economic trends."

The number of plans approved by medical societies has varied from state to state. Washington has 24; New York and West Virginia, 8 each; Texas, 2. Most have only 1.


NON UNION FRACTURE CARPAL NAVICULAR MAY CAUSE PERMANENT DISABILITY
IMMOBILIZATION OF THUMB IN PLASTER IS ADVISED

Physicians cluster around "live" demonstration at one of the Scientific Assembly's special exhibits on fractures, an annual favorite.

A. M. A. Scientific Assemblies

Great 'Show and Tell' Sessions Offer Advanced Education in a Physicians' Forum

The art of anesthesia had hardly emerged from the "laughing gas" era when the American Medical Association held its first annual meeting in Baltimore in 1848. But concerned though they were w[illegible] organizational problems, the assembled physicians took time to listen to [illegible] J. C. Warren of Boston, generally credited with being the first man to operate on a patient under ether anesthesia.

Dr. Warren not only told the small group of his experience but set a pattern for future meetings when he illustrated the method of preparing chloric ether. The pattern, with modifications, still holds today—108 years later.

Physicians attending the Clinical Meeting in Minneapolis next month will be seeking information and will get it from confreres who will be using modern adaptations of Dr. Warren's "show and tell" method.

The Clinical Meeting, established 10 years ago as an outgrowth of the Annual Meeting, is similar to it in content and presentation. Designed to appeal especially to the general practitioner, it will again offer a condensed postgraduate course in medicine by means of essays, exhibits, motion pictures, and color television.

Despite Dr. Warren's pioneering, the standard medical "paper" was the chief means of communicating information at Annual Meetings during the first half century of the A.M.A.'s history, but an 1899 innovation brought a marked change in emphasis. In that year, two Indiana physicians arrived at the Columbus, Ohio, session bearing jars of pathological specimens.

Renting, at their own expense, a warehouse near the meeting place, the two put their labeled specimens on display and lured their fellow doctors to the exhibit.

Their efforts were so well received that, by resolution, the A.M.A. decided to make similar displays an annual affair. The impact of the pathology exhibit was so great that, in 1902, the format was expanded to include all areas of medicine.

The two Hoosiers with their box full of wet specimens would be amazed at how their child has grown. At the Annual Meeting in San Francisco last year, 325 colorful, lighted displays of medical information were ranged aisle-on-aisle on the floor of the convention hall. Each had been carefully thought-out, planned, constructed, and shipped by a single physician or group. Each had survived a competitive screening that eliminated 200 more. The sole reward of the exhibitor was to be allowed to spend his convention days manning his display and answering hundreds of questions from all comers.

Making up the remainder of the Scientific Assembly at San Francisco were hundreds of general and specialty lectures, dozens of motion pictures, and eight color telecasts.

Programs for both the Annual and Clinical meetings are under the direction of the A.M.A. Council on Scientific Assembly. Secretaries of the sectional specialties develop their own programs for the Annual Meeting with the aid of the Council. A new program approach to be tried at the Annual Meeting next summer will be the combining of several sections to provide an across-the-board view of a single theme. Proposed topics: childbirth and liver disease. For the Clinical session, designed more for the general practitioner, the county society of the area in which the meeting is held plans the three-day session with the Council.

Show on the Road

Preparing for an Annual Meeting (and to a lesser extent a Clinical session) is not a simple task. Coordinated by Thomas Hull, Ph.D., Secretary of the Council, and aided by George Larson, Manager of Covention Services, it is nearly a self-sufficient unit.

"We are prepared to move into four walls and a roof and stage the Scientific Assembly," Larson says. He packs everything from a special wide chalk (so blackboard marks can be read from the last row) to slide projectors (in two sizes to accommodate differing transparencies). In addition, he totes along lap boards, flashlights, easels, movie projectors, lecterns, aisle lights, transparency cases, movie screens, and dozen of other items.

There is no record of the size of the Baltimore meeting room which housed the first Annual Meeting of the A.M.A., but it probably did not need to hold more than 300. So complex have housing arrangements grown in the intervening century that today only three American cities—New York, Miami Beach, and Atlantic City—can comfortably house the Annual Meeting.

More than 13,000 member physicians descended

Glowing like a city in miniature, aisle after aisle of scientific exhibits await the visiting physicians just before the opening of last summer's Scientific Assembly in San Francisco. Viewed from the convention hall's balcony (note figures seated at lower left), the lighted display offers an indication of the scope of medicine's most popular "postgraduate course."

on San Francisco for the 1958 session in June. The largest meeting ever held was in New York City in 1957, and it pulled 19,469. Convention statisticians say each physician can be counted on to attract 3.5 other persons: nurses, guests, medical students, technicians, interns, and residents. Figures show that nearly 45,000 persons were drawn to the Golden Gate City for this year's Annual Meeting.

Education on His Mind

Unlike many convention-goers, the physician headed for his Annual Meeting has education uppermost in his mind. He seeks new facets of knowledge and a new look at those areas familiar to him. How does he view this semi-annual effort? Generally, he's pleased, although he sometimes finds fault with some of the physical facilities or with the emphasis placed on certain portions of the program.

In surveys conducted among doctors who participated in two of these scientific sessions, the following comments were typical:

—"The entire meeting was worth as much as a two-week postgraduate course."

—"An excellent meeting. My only trouble was that I could not be in two places at the same time.... I'll be back next year."

—"There should be greater emphasis on psychosomatic medicine, emotional disturbances, and personality disorders."

—"At least 50% of all presentations should be left out to devote more time and intimate handling of subjects of importance to the greatest number attending."

The Clinical session due next month in Minneapolis will attract fewer guests than the Annual Meeting but will be of a similar type. Instead of 300 scientific exhibits, there may be 90. Instead of staying five days, many of the guests will remain for three.

Five Year Plan

But to Dr. Hull or George Larson plans for the Minneapolis meeting are now almost a thing of the past. They finished with that one (except for the execution phase) long ago and are now hip-deep in plans for Atlantic City next June. Even next summer's affair is well under control (the Council met with the section secretaries last month), and eyes are on more distant fields.

The A. M. A. is scheduled to be in Dallas next winter, and in Miami Beach in the summer of '60. After that comes Washington and then New York City again.

New York, Atlantic City, and Miami Beach are the only places with facilities that really fit the needs of the A.M.A's largest gatherings. These needs include a giant-sized exhibition hall, 14 meeting rooms (with ceilings high enough for motion pictures) with seating for as few as 200 and also for as many as 2,500, and lots and lots of hotel rooms. These facilities should be grouped conveniently to cut down on inter-meeting traffic problems.

Chicago, although it prides itself on being a convention town, has trouble furnishing the meeting space the A.M.A. would like. San Francisco, on the other hand, lacks hotel rooms, a factor officials say probably cut attendance last year.

But wherever they're held, A.M.A. meetings lead the list of human gatherings. After it was all over in San Francisco last June, Walter Swanson, the city's convention manager, called the A.M.A. influx "the largest mass migration of humanity in modern times outside the military."

Dr. Alphonse McMahon of St. Louis is Chairman of the Council on Scientific Assembly. Other members are Drs. J. Arnold Bargen of Rochester, Minn.; Michael E. De Bakey of Houston; L. W. Larson of Bismarck, N. D.; Carl A. Lincke of Carrollton, Ohio; Samuel P. Newman of Denver; Stanley P. Reimann of Philadelphia; Walter Scott of Los Angeles; and Henry R. Viets of Brookline, Mass. Thomas G. Hull, Ph.D., is Staff Secretary.

Doctors Spark Health Survey

A thorough study of all phases of indigent medical care is under way now in Florida, due largely to the efforts of the Florida Medical Association. Aimed at blueprinting future needs and services for medically indigent, the year-long project was launched this summer by Governor LeRoy Collins, who appointed a Citizen's Medical Committee on Health chaired by Dr. Edward R. Annis of Miami.

It was the state medical association, backed by other groups and individuals, which urged creation of the committee to study particularly outpatient services and care of the chronically ill. The committee also will make recommendations relating to maximum utilization of state health services, the role of voluntary agencies, and utilization of trained personnel.

Research by individual survey teams will complement data from state bureaus. This technique of study will examine population trends, hospitalization data, nursing homes, distinctive health and medical problems of the aged, and the possibilities of insurance for the aged and chronically ill.

A. M. A. Council Meets with Ten 'Third Party' Medical Chiefs

I propose that the medical profession and third party payers engage in a cooperative project for the delineation of criteria by which the quality, economy and improvement of medical care can be measured and judged with a fair degree of accuracy.

That statement sums up the viewpoint expressed by Dr. Warren F. Draper last month (October 17) at a meeting of the A. M. A. Council on Medical Service with medical directors of ten medical programs, most of them sponsored directly or indirectly by labor groups. (See Organization Section, THE JOURNAL, Sept. 20, 1958). Dr. Draper is executive medical officer of the United Mine Workers of America Welfare and Retirement Fund.

It was the first such conference called by the Council in its efforts to clarify third party relationships. Participants noted that the six-hour session in Chicago was marked by an air of cordiality combined with frank discussion. Later this month, according to Chairman Joseph D. McCarthy of Omaha, the Council will meet similarly with representatives of Blue Shield and Blue Cross. Next month, plans call for conferring with private insurance company officials, and also with representatives of management. Early in 1959 there will be a Council session with government representatives. "Eventually, we expect that all of these third parties may be brought together by the Council in a national conference," Dr. McCarthy said.

Following are selected comments from physicians invited to the October 17 meeting:

Herbert K. Abrams, Union Health Service Inc. of Chicago—"When any new health plan arises, the physicians who are not in it are against it—until they realize it is here to stay as it grows and matures. That is the experience of history. . . . The emphasis of our service is preventive care. Physicians have complete control over all medical care rendered. We confer frequently with the Chicago Medical Society, and all of our physicians must be medical society members . . . The A. M. A. Guides for Evaluation of Management and Union Health Centers are correct when they state that health centers 'should be allowed to prove or disprove their merit, so long as they provide care of high quality.' "

David Barr, Health Insurance Plan of Greater New York—"Our relationships with local medical societies are not deteriorating. However, these societies act and think friendly at informal meetings only. They do not follow through at their meetings of delegates when official policy is made. . . . This meeting today is very encouraging."

Cyril Costello, Medical Institute of Meat Cutters' Local 88, St. Louis—"Our program allows free choice of physician and hospital. Physicians, all of whom are part-time with the institute, must be local medical society members, must be faculty members of at least one of the two university medical schools in the St. Louis area, must be in private practice, must be board-certified in their specialty and must be a private hospital staff member. Soon we will begin a program to emphasize preventive aspects to an even greater degree than exists now."

Cecil Cutting, Permanente Medical Group—"It is a firm policy to urge the Health and Welfare Fund to offer employees a choice of joining the direct service group practice prepayment plan (Kaiser Foundation Health Plan) or joining a fee-for-service type of plan like Blue Shield, Blue Cross, or that offered by private insurance firms. . . . Qualified physicians who are not in the Permanente Medical Group, on application, are granted courtesy staff privileges at Kaiser Foundation Hospitals, which are accredited by the Joint Commission. . . . The evolution of different forms of medical care organization and different forms of prepaid medical care to meet the needs of the people is both a natural and healthy development in our free, private enterprise economy."

Warren F. Draper—"Liaison is out of the question where medical societies engage in programs of harassment against us. Yet, relationships with medical societies are improving. In West Virginia and some other states we get along well. Still, so many physicians do not know the true facts—and as a result they make the wildest statements. Satisfactory principles and good relationships between organized medicine and paying agencies can be accomplished only through the development and utilization of accurate information in place of the dubious expressions of opinion which have formed so large a part of resolutions of medical societies at every level in recent years. . . . When this health program was started I was convinced it was a unique situation peculiar to the UMWA. Now I've learned a lot—that other people, splendid people associated with other programs—have the same basic problem. We all have to work it out together. . . . Things are not so black."

Henry H. Lichtenberg, Group Health Association of Washington, D. C.—"Our patients wanted to delegate their choice of physician to others rather than accept it themselves. The plan also gave us physicians reasonable security of income and hours. . . . There are good relations with the local medical society and several of us are active in it."

Frederick D. Mott, Community Health Association, Detroit—"We expect to announce a program in the next 12 months. It will be a community-based

Chairman of the Council on Medical Service is Dr. Joseph D. McCarthy of Omaha. Other members are Drs. J. Lafe Ludwig of Los Angeles; Russell B. Roth of Erie, Pa.; H. B. Wolley of Idaho Falls, Idaho; Carlton E. Wertz of Buffalo; T. J. Danaher of Torrington, Conn.; Robert L. Novy of Detroit; R. B. Chrisman Jr. of Coral Gables, Fla.; John F. Burton of Oklahoma City, and David B. Allman of Atlantic City. Staff secretary is Mr. George W. Cooley.

program gaining counsel, not only from the United Auto Workers, but from many walks of life—the clergy, bankers, and others. It will be a health program—not just sickness insurance—with emphasis on prevention and rehabilitation. We will make certain that individual members be able to have a choice of service. We urge a personal physician relationship. All medical matters are to be in medical hands—no lay domination. . . . We are anxious to develop our program in the framework of organized medicine. If we do build hospitals, they will be open to all physicians and all patients. . . . There are many physicians devoting their lives to direct service—good men—and organized medicine will be the loser if these men are pushed aside and kept out of the house of medicine."

Leo Price, International Ladies Garment Workers Union Health Center, New York City—"Our emphasis is on preventive aspects. Service is restricted to the ambulatory level and hospital assistance—not comprehensive care—because there is lack of funds. . . . It seems to me that the challenge of this broad problem is to communicate the great work of the A. M. A. to local groups."

William A. Sawyer, consultant, International Association of Machinists, Rochester, N. Y.—"We stress preventive care. . . . I am also reporting on a projected health care plan in Rochester, a joint management-labor effort for clothing workers. It is being taken up with the local medical society now."

George Shucker, Sidney Hillman Medical Center, Philadelphia—"We want to emphasize the preventive aspect of our program because to our knowledge there is no prepaid or non-profit insurance agency that sells unrestricted ambulatory preventive care. . . . Our pattern is to seek and get county medical society approval before setting up a center. . . . We need more meetings such as these—not only with the medical directors but also with administrators of our plans."

Societies Getting Part of Medical Care Plans Report

After many months of conference and study, distribution of Part 2 of the final report of the A. M. A. Commission on Medical Care Plans will be made next week (beginning Nov. 10) to all county and state medical societies. Part 2, which consists of statistical appendices and background material, was approved by the House of Delegates last June. The seven appendices consist of:

—Characteristics of 107 miscellaneous and unclassified plans surveyed by mail questionnaire.

—A directory of 246 plans for which information was available to the Commission.

—Results of several surveys on provisions and characteristics of medical society approved prepayment plans, including Blue Shield, and group and nongroup private insurance programs.

—Results of surveys on nonoccupational medical care and occupational disability programs in industry.

—Selected statutory provisions of workmen's compensation laws.

—Information on monetary aspects of workmen's compensation.

—Selected Judicial Council opinions and House of Delegates policy statements which were considered pertinent to the Commission's inquiry.

The Commission's study attempted to determine, among other matters:

1. The nature and methods of operation of the various types of plans through which persons receive the services of physicians.
2. The effect of these plans on the quality and quantity of medical care provided.
3. The legal and ethical status of arrangements used by the various plans.

Part 1 of the final report of the Committee on Medical Care Plans, with findings and recommendations, has been completed and submitted to the Board of Trustees for review and appropriate action.

Members of the Commission on Medical Care Plans are Drs. Leonard W. Larson of Bismarck, N. D., Chairman; David B. Allman of Atlantic City; H. Russell Brown of Watertown, S. D.; John F. Conway of Clovis, N. Mex.; F. J. Elias of Duluth, Minn.; Percy E. Hopkins of Chicago; H. Gordon MacLean of Oakland, Calif.; J. D. McCarthy of Omaha; Homer L. Pearson of Miami; Leo Price of New York; James R. Reuling of Windermere, Fla.; William P. Shepard of New York; Norman A. Welch of Boston; Mr. E. J. Faulkner of Lincoln, Neb., and Mr. Jay C. Ketchum of Detroit.

Compile List of Group Practices

The significance of group practices as an arrangement through which physicians provide medical care is illustrated by a roster of group units being compiled by the A. M. A. Council on Medical Service.

The Council recently mailed a verification sheet to 1,008 groups listed in a card file compiled from membership rosters of the American Association of Medical Clinics and the National Association of Clinic Managers, and from news clippings and letterheads.

A breakdown of 822 replies from groups in the U. S., Hawaii, and Canada shows 8,958 physicians practicing in these groups. While 100 of the groups answering had only two physicians, 689 included more than two. The mailing showed 18 groups had been dissolved and 15 former two-man groups had been split into individual practices.

Physicians in group practice not yet contacted are asked to send the following information to the Council: group name, address, offices (rented or owned), number of physicians, and specialities.

Purpose of compiling the information is the publication, in a few months, of a directory of group practice units.

Expansion of Rehabilitation Units Sought in State Societies

Last spring, the A. M. A. Committee on Rehabilitation polled constituent member societies to learn whether they had committees on rehabilitation. It now finds that, of the 49 responding, 25 have such units but that "all too frequently, the Committees' activities are limited to some form of liaison or cooperation with the state's Office of Vocational Rehabilitation."

Meeting in Chicago Sept. 27, the A. M. A. Committee discussed methods of encouraging the formation of rehabilitation committees by state societies that do not now have them—and urging those that do to expand their activities.

Those discussions, not yet formalized, centered on the following possible objectives:

—Coordinate rehabilitation interests and activities within the society.

—Foster medical supervision of rehabilitation services and centers.

—Study the problems and relationships of medical, social, educational and vocational aspects of rehabilitation (see Medicine at Work, THE JOURNAL, Nov. 2, 1957).

—Inform the medical profession on the availability of rehabilitation services.

—Collect information on the establishment, operation and utilization of rehabilitation services.

—Encourage county society interest in and programs on rehabilitation.

Implementing a wide-spread concern of organized medicine with the challenge of rehabilitation, the two year old Committee on Rehabilitation is made up of one representative each from the A. M. A. Councils on Medical Service, Medical Physics, Mental Health, Industrial Health, and Medical Education and Hospitals.

Community Rehabilitation Services More Practical Than a Center

While it is important to treat "the whole man" in any effort at rehabilitation, it may be unrealistic to require that his medical, psychological, social, and vocational needs be all taken care of under one roof.

That was the conclusion reached by two A. M. A. Committees when they met jointly in Chicago Sept. 27 to discuss the practical effect of the Hill-Burton law restrictions on construction of rehabilitation facilities.

Dr. Willard A. Wright, Chairman of the Committee on Medical and Related Facilities, said his Committee's recent study of the practical applications of the Hill-Burton law showed that more emphasis was needed on rehabilitation facilities. He pointed out, however, that the present wording of the law makes it difficult for small hospitals to take part in that part of the program because it requires them to provide a rehabilitation facility which includes medical, psychological, social, and vocational services.

Noting that only 62 centers had been built with Hill-Burton aid since the category was added in 1954, Dr. Edward C. Rosenow Jr., a member of Wright's Committee, said: "That's not many for the entire United States."

Dr. Frank H. Krusen, Chairman of the Committee on Rehabilitation, said his group felt it was important to provide all rehabilitation services within the community but that these need not necessarily be within the hospital itself if to do so would be a great burden.

D. C. Rehabilitation Study Links Medicine with Other Groups

"A study [of rehabilitation] would not be complete without the opinion of the practicing physician."

Putting action to those words, the Council on Rehabilitation recently began a survey of doctors in Washington, D. C.'s metropolitan area as a part of its broad study of rehabilitation services. The Council is sponsored by the medical societies of the District of Columbia, the city of Alexandria, the Virginia counties of Arlington and Fairfax, and the Maryland counties of Montgomery and Prince Georges.

Supported in part by a grant from the federal Office of Vocational Rehabilitation, the project was begun in mid-1956 "to study existing rehabilitation facilities and to assess present and future needs." Another aim of the study is to demonstrate the role

Handy 'Handicapped'

The slogan says: "Hire the handicapped—it's good business."

E. I. duPont de Nemours and Company of Wilmington, Del., agrees that it is and has the figures to prove it. "An overwhelming majority of the more than 1,000 physically handicapped employes of the Du Pont Company have achieved average-or-better levels of job performance, safety, and attendance," the firm's Employe Relations department said recently. It based its conclusions on a study made last summer in the company's plants, laboratories, and offices.

So severe is the company's definition of what constitutes a handicap that "many employes who normally would be considered handicapped were not included in this study," an official said. Not only that, but some of Du Pont's best performers have the most severe handicaps—amputation, blindness, deafness and paraplegia.

of the local medical society in total rehabilitation planning.

The need for cooperative effort in such a project is underlined in an interim report reviewed last month by the A. M. A. Committee on Rehabilitation. The report said: "There is a growing recognition that problems do not confine themselves to jurisdictional boundaries." One of the early conclusions reached by the Council was that the physician's role in the rehabilitation partnership should be given even more emphasis than originally thought.

Chairman of the Committee on Rehabilitation is Dr. Frank H. Krusen of Rochester, Minn. Other members are Drs. Walter H. Baer of Peoria; Guy A. Caldwell of New Orleans; Oscar A. Sander of Milwaukee; and Hoyt B. Woolley of Idaho Falls, Idaho. Dr. Ralph E. De Forest is staff secretary.

Symposium Explores Medicine's Vertical Frontier

What special kind of nutritional problems must be considered in planning an interplanetary voyage? That and other questions related to the well-being of man in space are being explored this coming week in a worldwide exchange of information and ideas at San Antonio, Texas.

The Second International Symposium on the Physics and Medicine of the Atmosphere and Space on Nov. 10 through 12 will emphasize man's adaptation to space conditions, including an altered concept of time. Other specific problems scheduled for discussion involve medical and psychological aspects of launching and re-entry.

Keynoting the symposium will be an address by Major Gen. Otis O. Benson Jr. on "Common Platform of Physics and Medicine in the Advance of the Vertical Frontier." Dr. Benson is Commandant of the School of Aviation Medicine at Randolph Air Force Base, where recent studies have shown that practical space travel for humans is in the near future (see Medicine At Work, The Journal, June 15, 1957). He is scheduled to introduce Lyndon Johnson, Senate Majority Leader, as dinner speaker.

Among more than 50 civilian and armed forces scientists scheduled to make presentations at the symposium are the Air Force Chief of Staff, Gen. Thomas D. White; Air Force Surgeon General Dan C. Ogle; Dr. Hubertus Strughold, Professor of Space Medicine at the Air Force School of Aviation Medicine; Dr. Werner von Braun, technical director of the Army Ballistics Missile Agency, and Col. John Paul Stapp, chief of the Air Medical Laboratory. The conference, sponsored by the School of Aviation Medicine, is being conducted by the Southwest Research Institute.

'Lifelong Study' Is Keynote of Medical Education Conference

When does a physician stop studying medicine? Never.

Announcing the theme, "Medicine—A Lifelong Study," trilingual invitations to attend the Second World Conference on Medical Education have been mailed to physicians and other members of the health professions in the U. S. and more than 60 foreign countries. The five-day conference will open on Aug. 30, 1959, at the Palmer House in Chicago under the auspices of the World Medical Association. Collaborating in the presentations are the World Health Organization, the Council for International Organizations of Medical Sciences, and the International Association of Universities.

According to the provisional program, there will be three days of section meetings between the opening and closing plenary sessions. These sections will be concerned with basic clinical training for all doctors, advanced education for general and specialty practice, the development of teachers and investigators, and continuing medical education. The theme topic will be carried in a presidential address by Dr. Raymond B. Allen, Chancellor of the University of California in Los Angeles. Other major presentations will consider international cooperation in postgraduate education, and the value of participation in research as a component in the education of physicians.

Arrangements are being made for participants to join three afternoon tours of medical schools and hospitals in Chicago and to visit A. M. A. headquarters. At the conference scene there will be technical, medical film, and audiovisual aids exhibits. During sessions, simultaneous translation will be provided in English, French, and Spanish. Governments, medical schools, and national and international bodies concerned with medical education will be represented at the conference.

(Any person who is interested in medical education may apply for conference registration by communicating with Dr. Louis H. Bauer, secretary general of the W. M. A., at 10 Columbus Circle, New York 19.)

Founded 11 years ago, the W. M. A. is a nongovernmental confederation of 53 national medical associations representing a total membership of more than 700,000 physicians. As "the international voice of medicine" (see Medicine At Work, The Journal, Sept. 7, 1957), it has been promoting research, sounding the alarm when physicians and their patients have been oppressed, and reporting on the activities of at least 23 other international organizations as they affect the practice of medicine.

Picture of Medical Education Coming in Next Week's JOURNAL

One of the broadest, and yet most concise, pictures of medical education in the U. S. and Canada will be seen in next week's issue of THE JOURNAL. More pictorial than ever before (with scenes from at least a dozen schools), the educational issue includes material on virtually every phase of medical education during the 1957-1958 academic year. Following is a preview sampling of some of that highly significant data:

Enrollments—A new record high for the ninth year, 8,030 entering students. Four schools—Tennessee, Michigan, Jefferson, and Illinois—each with four-year enrollments of over 600. The average prospective medical student applied to four schools to gain admission—60,946 applications filed by 15,791 applicants. Over 20 times as many U. S. citizens enrolled in Canadian medical schools as Canadians enrolling in the U. S., but the exact figures (82 and 4) are quite low. One out of every 18 medical school enrollees in the U. S. was a woman (total 1,644); approximately the same proportion of graduates was female, although in four schools (Howard, Boston University, Wayne State, and Western Reserve) the graduating percentage of women was 10% or more. Of course, Women's Medical College enrolls no men.

Financing—"Less than one per cent of the nation's bill for medical care is being spent for medical education," writes Mr. A. J. Carroll, Business Officer of the State University of New York, in a criticism of "inadequate financial reports" from medical schools. He adds: "Educators, doctors, students, health personnel, legislators, government officials, university officials and the general public—all are confused about medical education, what it costs, what it means to them, what they are paying for it, and what they should be paying." But there may be clarity soon, Carroll states, as the result of a recent grant from the W. K. Kellogg Foundation to underwrite a study of medical school financing—"this study for the first time will be able to prove the financial needs of medical education, and to establish new standards of management efficiency."

Progress and Experimentation—Forty-nine of the 85 operating medical schools in the U. S. and 7 of the 12 Canadian schools reported major new developments. These include a plan at Duke University to prepare physicians who are also skilled medical research scientists; a greater emphasis on educational methods for medical teachers at the University of Buffalo; the first report on a 12-year evaluation study of the medical education program at Western Reserve; studies of the sociology of medical education conducted at Cornell, Western Reserve, and the University of Pennsylvania; and an experimental program at the University of Pittsburgh whereby medical students whose separate career-hopes lie toward research, clinical specialties, and general practice might adapt their education flexibly to reach any of those three objectives.

Two New Committees Ready for Studies on Insurance, Radiation

The A. M. A.'s two newest Committees—one whose mission is primarily socioeconomic, the other basically scientific, but both concerned with major influences in modern times—are ready to begin their separate studies.

The nine-man Committee on Insurance and Prepayment Plans, under the Council on Medical Service, held its first meeting late in September and will meet again in early January. It is considering matters relating to insurance written by private companies and by Blue Shield and Blue Cross and to prepayment health care plans.

The nine-man *ad hoc* Committee on Atomic Medicine and Ionizing Radiation, under the Council on Medical Physics, is expected to meet for the first time within a few weeks with two main objectives:

1. Identify the broad problem of ionizing radiation as it pertains to the health and medical needs of the public—including the hazards, effects, prevention and treatment of radiation exposure to mankind and the environment.
2. List the areas requiring attention in a suggested order of priority.

Less than one dollar out of five spent for medical education is contributed by the student, the American Medical Education Foundation reported this month as its annual fund drive gained headway. Formed by the A. M. A. in 1951 to aid medical schools with their financial problems, the foundation has given more than 7 million dollars to medical education in the seven intervening years.

John W. Hedback, executive secretary of the A.M.E.F., said: "Contributions come chiefly from doctors and their wives, both individually and through state and county societies. About half the money has been sent to schools specified by the donors. The other half has been divided equally among the schools."

The Troubled Employee

He Looms Large As an Economic Loss, Community Problem, Medical Challenge

Milton Golin

In one day several years ago, five employees of a large East Coast industrial firm went to supervisors to complain about their jobs: Schedules were too difficult. Co-workers were intolerable. Office equipment was no good. Other departments were uncooperative. There was too much noise—or glare—or heat—or cold. Because they also complained of backache, headache, and abdominal pain, they were referred to the plant medical office. There, a company physician who happened to be a psychiatrist listened to their gripes and relieved their hurts. He also found that only one complaint could be traced to actual work conditions. These were the true causes of the other four:

A stenographer whose boy friend had stalled her for a long time had become panicky at the thought of losing him.

An account executive was afraid he would inherit the heart disease that killed his father, and the paranoid tendencies showing in his mother.

A young salesman was ashamed that he could not make up his mind about two girls who were in love with him.

A foreman was sick with the feeling that he was to blame for his wife's depression, which led her to threaten the lives of their two children.

How much business did the salesman lose that day? What major blunder crept into the steno's work? Where did the account executive fail to make an important decision? How many workers reacted in what way to the mood of their guilt-laden foreman? These may be questions for the economist, the sociologist, the administrator. But they also are questions for the family doctor. The troubles of these four employees, as of thousands more weighed down with anxieties, concern the entire medical profession because both personal and public health are at stake on a nation-wide scale.

The American Medical Association, mindful of the many-sided problem, this year established a Joint Committee on Mental Health in Industry—made up of members and designates of the Councils on Mental Health and Industrial Health—to explore the field. All five Committee members this month are beginning their study on the premise that industry is not an island of people at work. They know that industry is part of the human community and that it is another of man's several social units. For in industry, perhaps more than in any other area of American life, we are constantly being reminded of the dissatisfactions, strife, and violence that occur among people.

There is little doubt that, by and large, these people are sufficiently attuned to their jobs so that work and private problems hardly ever come into serious conflict. At the same time, industry has its severely troubled but otherwise normal employees: The homely typist without companions. The corporation lawyer who endures his distasteful job for security though he really longs to be an artist. The machinist whose wife's illness makes him do double duty as provider and homemaker for his children. The girl on the assembly line whose home life is disrupted by an alcoholic father.

That kind of unhappy or worried employee is the "accident prone" who unmeaningly violates the safety rules and suffers one mishap after another. He is the goldbricker, the trouble-maker, the one who will lose his job and cost perhaps thousands of dollars to replace. He has the ability but not the attitude to hold his job. A psychiatrist who is making a career out of the study of mental health problems in industry, Dr. William C. Menninger, says: "From 60 to 80% of all dismissals in industry are due to social incompetence and only about 20 to 40% to technical incompetence. What may be more important, we know that one emotionally disturbed employee can mess up his whole department like the proverbial single rotten apple in the barrel, and that the cost of such a person can hardly be estimated."

There are guide lines for gauging the cost, however. In one General Motors Corporation plant of

Members of the A. M. A. Joint Committee on Mental Health in Industry are Drs. Leo H. Bartemeier of Baltimore; Leonard E. Himler of Ann Arbor, Mich.; Charles F. Shook of Toledo; W. Donald Ross of Cincinnati; and Ralph T. Collins of Rochester, N. Y., chairman. Staff secretary is Dr. B. Dixon Holland.

5,800 employees, psychiatric and psychological problems were found in more than half of the workers reporting for medical care; most actually were made physically ill by those emotional problems. California's industrial accident commission announced that in one year the state paid out 15 million dollars to compensate employees suffering from some kind of neurosis associated with an in-plant injury. According to a Chicago Association of Commerce and Industry publication, maladjusted workers cost U. S. industry at least 3 billion dollars a year through repeated job changes, alcoholism, vandalism, prolonged work absence, executive breakdowns, and other signs of mental and emotional difficulties.

One corporation sent its best technician-executive on a three-months' tour of Europe with an important mission. The man failed miserably. Only much later was it learned that his wife was mentally ill and that he was worried about her and about conditions at home all the time he was away. His wife's illness was an enormous liability to the company, which might have saved itself expense, and saved the executive anguish, if a physician had picked up hints of the difficulty in a periodic examination or in day-to-day contacts with the man.

Who Are the Helpers?

Doctors employed in industry have many allies, both within and outside the profession, to help them detect such danger signs. Foremost, of course, is the family physician. As health advisor he, more than anyone else, is in a position to do a preventive job by minimizing the effects of his patients' personal problems. This should make the general practitioner a key man for maintaining mental health in industry. Other key figures are industrial nurses, supervisors, personnel officials, counsellors—and psychiatrists. Unfortunately, although most companies accept all of these individuals as essential contributors to mental health in industry—a surprisingly large number hesitate to employ the one most concerned—the psychiatrist—on a full-time basis. One corporation president commented: "Sure, psychiatrists are all right, but if we have one on the regular payroll, people will wonder what's different about our employees."

In all of the United States there are only a half dozen companies which employ full-time industrial psychiatrists. These include Du Pont, International Business Machines, American Cyanamid, America Fore Insurance Group, and Metropolitan Life. However, at scores of other firms—such as Caterpillar Tractor, Kraft Foods, American Telephone and Telegraph, and the Detroit automakers—psychiatrists work part time or on a consultant basis. According to a survey made this summer by the *Wall Street Journal* (which calls mental illness "industry's top medical problem") company psychiatrists seldom give long-term treatment. Dr. Alan A. McLean, full-time psychiatrist at IBM, said: "We're not here to compete with private practicing physicians. Our job is to diagnose emotional disorders and determine whether they should be referred for psychotherapy."

Industrial nurses play a vital role in mental health. One alert nurse in a Western Massachusetts metal-working concern several years ago wondered why a craftsman showed up twice within a short period for treatment of finger injuries caused by careless handling of his machine. She drew him out and learned that he was worried about where to turn for aid for his wife, pregnant at middle age. The nurse simply told him where to find a social agency that could help his wife. No psychiatrist, she nevertheless provided the kind of counselling that nurses, personnel men, foremen, and others may develop under the guidance of a psychiatrist or other physician. The guidance must be proper, of course, for misguidance may easily do much more harm than good.

Pioneering Study

An example of proper guidance is in the Western Electric Company, whose Hawthorne Works in Cicero, Ill., 32 years ago became the laboratory for a pioneering study which has not yet been equalled in thoroughness and intensity. The study was intended to find out what kind of lighting would help boost production. But the plotting of one "average output" curve led to another until, before long, research was going on full blast into what makes a worker tick. The researchers found that better lighting increased output, all right, but that reduced lighting also increased production. Why?

That five-year experiment demonstrated that by merely exhibiting interest in workers—as each re-

The Desk Set—One Man's Worry

Officials of an East Coast business firm were puzzled over the change in one of their executives after he was transferred to another job in the plant. He was receiving the same salary and he had equal responsibilities, but, despite assurances that it was a lateral shift only, the man developed all the symptoms of acute anxiety. He lost sleep, his appetite fell off, and he could not concentrate on his work. By chance, Professor F. J. Roethlisberger of the Harvard University School of Business Administration happened to be conducting a study of that company. He recognized that an unofficial symbol of status there was possession of a twin pedestal desk. The executive had been transferred to a desk with only one pedestal. At Roethlisberger's suggestion, the man was given a two-pedestal desk and his symptoms disappeared almost immediately.

New Problems, New Needs

The business community must bear at least some of the responsibility for creating mental health problems of its employees, according to *Business Week*. An article in that national magazine states: "Executives fail to realize that they themselves are partly responsible for changes that have raised new worker problems. . . . Fifty years ago a man followed his father's footsteps, used his hands to produce a finished product and he could take satisfaction in his handiwork. Today the worker is separate from the finished product. He is not able to feel the same satisfaction in seeing a job well done." The article also states, "The big problem for industry is finding the right doctor. Specifications are exacting. He has to know his medicine and he has to be a good listener when it comes to sob stories. He has to be an intermediate between worker and management without looking like a company spy. In short, he has to be a combination of Dr. Christian of the movies and an army chaplain."

searcher did—management was able to make them happier and more productive. It did not take long for the company to realize that a counselling program would sustain that interest. Several score Western Electric counsellors, skilled listeners who were always present, encouraged the worker to talk about anything at all—never interrupting, never arguing, never giving advice. Often the result, according to the company, was that employees seemed to talk their troubles away, re-examined their thinking in the sound of their own words, and acquired a social skill in relationships with fellow employees.

An echoing comment comes from Dr. Leo Wade, medical director for the Esso Standard Oil Company, who says: "Many times a worker will come in with a complaint and all he needs is a sympathetic ear. After he talks to us awhile and gets his trouble off his chest, he begins to feel better."

Western Electric cites a good example of this, an employee of 20 years' experience who began hitting the skids until he was doing the lowest grade of work in his department. He became so edgy that no one dared approach him for fear of triggering an accident at his machine. His locker was a small drugstore of medicines. He complained that even when his back was turned he could feel the foreman's eyes boring through him—always spying on him. Company counsellors uncovered an extreme case of social isolation. The man lived alone, locked himself in his room each evening, dosed himself with whisky and medicines, had no friends, and rarely visited his only relative.

After three weeks of skillful interviewing under medical supervision, nothing more than what might be called friendly chats, the employee's fears faded away. His work improved, he began to take an interest in co-workers, and his rise again to a responsible position of leadership became a matter of course.

Importance of Leadership

Of all factors that influence mental health in the office and factory, the foremost is leadership. The special pressures on many an executive—frustrations, fear of failure and feeling of insecurity—inevitably will either warp or stabilize the attitudes of people under his leadership, depending upon his own approach in handling those pressures. "That is why the executive's well-being is of vital concern, not only to himself but, even more importantly, to those he leads," says Dr. Ralph T. Collins of Rochester, N. Y., Chairman of the new A. M. A. Joint Committee on Mental Health in Industry, and neurological and psychiatric consultant for the Eastman Kodak company. "There are cases of companies which reached the brink of bankruptcy because they had emotionally sick men at the helm—men particularly difficult to treat because of their position. There are supervisors who are autocratic and domineering, who are unable to make a decision or to delegate responsibility, who are bad-tempered, who are unreasonable, who are unable to win respect.

"Fortunately, this kind of executive is in the minority for the very reason that our economy places such a high premium on production; he is less likely to survive in competition with the executive who does gain the respect and added effort of his workers."

That is only part of the reason, however, and it may even be the wrong part. For the core of our mental health problem in industry, according to Dr. Menninger, is "a mixing of our values system. We tend to focus on and hear about one side of industry, which has as its chief goals the increase of production and the increase of profits. But money won't bring or buy the loyalty or high morale we strive toward. So much of job satisfaction depends on the personal values that are gained in human relationships through mutual respect and dignity, confidence and belonging and, yes, love."

The Problems

That concept indicates that, while management generally may be aware of its deep involvement in the worker's personal problems, it also needs *medical guidance in dealing with employees* so that emotional difficulties will not be created or aggravated. Says Dr. Collins of the A. M. A. Committee: "Meeting that need represents the biggest task of the physician—whether he is a full-time industrial psychiatrist, one of the 5,000 doctors who devote their careers to the broad field of occupational health, or one of the 20,000 other physicians who serve industry part time or on call (see Medicine At Work, The Journal, March 30, 1957). The doctor employed in industry can work two different ways to preserve mental health. He can see that the worker gets emotional first aid in the form of brief psychotherapy after early diagnosis, and he can emphasize preventive aspects in his role as consultant in labor and industrial relations."

What Is Being Done

Actually, this is what many physicians, in cooperation with management and labor, are doing to brighten the mental health picture in factories and offices—and, thereby, in communities—across the land. These are other current developments pointing toward progress in this expanding field:

—This month, on Nov. 20, the A. M. A. Joint Committee on Mental Health in Industry will meet in Chicago for the first time to plan its program.

—Since last February, under the auspices of the American Management Association, top executives from scores of business firms have been gathering at Saranac Lake, N. Y., for concentrated sessions on human factors in industry. The courses are conducted by psychiatrists (like Dr. Collins) and other authorities in the field.

—Three weeks ago the New Jersey Industrial Health Conference devoted half of its day-long program to emotional factors in the work environment.

—More and more state and local medical groups are establishing committees on mental health in industry.

—The World Health Organization this year is launching *a study of the effects of automation on* mental health.

—This year, for the first time, the Industrial Medical Association created a committee on mental health in industry.

—Work is being completed now on the first phase of a massive study of human relations in industry. The project, begun three years ago and financed partly by a grant of the Rockefeller Foundation, is being conducted by the Menninger Foundation's clinical staff. In order to gauge the measure of corporate actions upon workers' mental health, researchers so far have conducted "in-depth" interviews of more than half of the 1,900 employees of the sprawling Kansas Power and Light Company. Using this study as a base, the Menninger Foundation hopes to develop a program having far-reaching effects on mental health in industry.

Promise of the Future

Those developments point toward the solution of a host of complex problems evolving out of our expanding industrial society. But what kind of

Foremen rate "good wages" as the most important condition of their jobs, but the men who work under them believe that appreciation for good work is most important—according to results of a survey reported by the Labor Relations Institute of New York. The Institute prepared the following chart to show how both groups feel on this point:

JOB CONDITIONS	WORKER RATING	FOREMAN RATING
Appreciation for good work	1	8
Feeling "in" on things	2	10
Help with personal problems	3	9
Job security	4	2
Good wages	5	1
"Work that keeps you interested"	6	5
Possibilities for promotion	7	3
Personal loyalty to the workers	8	6
Good working conditions	9	4
Tactful discipline	10	7

program can be formulated to prevent these problems from arising in the future?

—Already, there are mounting efforts by leading psychiatrists to instill upon top management officials the idea that there should be greater emphasis on "capacity for human understanding" in the rating and selection of executives. Dr. Menninger puts it this way: "When I say a leader must understand men, I don't mean understanding from a common sense point of view alone. I mean from a very uncommon sense point of view. The kind of a leader that I would wish in many, many high places is the man who has some understanding of personalities, their structure and function, how they work, and who knows of the unreasonableness in all of us and the hostilities we all have."

—Growing numbers of the former mentally ill, with the cooperation of management and labor, are being rehabilitated into productive employment.

—Influential advisors to both labor and management finally are putting across the point that perhaps industry is remiss when it looks upon the neurotic employee as a liability who should be either fired or swept under the rug of some remote department. In a book published recently, one psychiatrist views such an employee as a valuable weathervane—much as miners value canaries in coal pits as alarm-ringers of danger.

—Carrying that point a step farther, top industry executives are beginning to recognize that business administration at all levels is defeating itself and the nation at large when it attempts to screen out emotionally tense employees or job seekers. Dr. Frederick W. Dershimer, who was hired as a full-time psychiatrist for E. I. du Pont de Nemours in 1943, said: "The most valuable people are sometimes screwballs. If you do a good enough screening job you may get people who are perfectly normal. But you will have screened out people who discover things like Nylon."

Mental Health—A Definition

Mental health is a medical goal not only in industry but in agriculture and other occupational fields as well. Here is one definition given at an A. M. A. Rural Health Conference by Dr. J. Lester Henderson, a psychiatrist, while he was chairman of the Mental Health Committee of the Washington State Medical Association: "Mental health is that state of mind and feeling that looks on life as basically good. The mentally healthy individual arises in the morning with confidence in his heart, expectation in his attitude and a grin on his face. He is optimistic and friendly, with a capacity for patience and trust. He can take frustration and disappointment without being embittered. He can find new goals if the ones for which he was trying become unobtainable, and in his prayers he can express feelings and ideas beyond what he could express to his parents."

Those trends are bright spots which could offset darkness as medicine and its allies seek to maintain mental health in our growingly complex occupational environment. An over-riding benefit might easily be overlooked in this search. It represents the greatest reward of all: The personal well-being of the nation in generations to come. When a boy hears his father constantly complain about his job, he is likely to have a similar attitude toward his own work and employer. Here we see contagion feeding upon itself. But while there are indications that mental illness may be as communicable as the common cold, there also is ample evidence that mental health in its most beneficial sense is even more "catching." Says Dr. Collins of the A. M. A. Committee:

"The work that men do is an essential part of their lives, not mainly because by it they earn bread but because a man's job gives him stature and binds him to society. The worker who is happy in his job, with confidence in his management and cooperative relations with his coworkers, will spread his contentment throughout the community."

MEDICINE AT WORK in future issues

- *Medical Research Heroes*
- *Hobbies Help Practice*
- *Suicide—A Medical Problem*
- *Hypnosis—Tool or Weapon?*
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CHILDREN IN HOSPITAL

FOR A CHILD to be removed from his parents, placed in strange surroundings, and subjected to a variety of unpleasant procedures is apt to be psychologically traumatic under the best of circumstances. The extent of such a trauma depends on such factors as the age of the child, the length of his hospitalization, the closeness of the parent-child relationship prior to admission, how well he was prepared for the new experience, the nature of the child's illness, the nature of the required treatment, the basic personality of the child, the frequency of parental visits, the type of nursing care provided, and the presence of other children on the ward. Illingworth [1] elaborates on many of these factors. A child naturally has a feeling of helplessness but this does not cause undue anxiety unless the situation appears to the child to be a threatening one. If an anesthetic must be given the child may fear that he will be or that he has been mutilated while he is or was asleep.[2] Often the child's anxiety is a direct reflection of the anxiety of the parents.

Illingworth calls attention to the fact that the child who cries when parent leaves after admission or at the end of every visiting hour is an overdependent child who also cried when left at home with a sitter for a few hours. Immature parents unconsciously encourage this because they feel flattered by such a show of dependence or, as they prefer to call it, devotion. There is no doubt that parental factors can aggravate the psychological problems of a child in a hospital. These include a poor parent-child relationship before admission, lack of appropriate preparation for admission, failure to visit the child daily, failure to maintain reasonable discipline even in a sick child, and making promises that cannot be kept such as promising that child can come home "tomorrow." The worst type of parent-induced anxiety possible results from the practice of some ignorant parents of telling a well child that if he does not behave the doctor will come and take him to the hospital. Woe betide such a parent if the child ever does have to go to the hospital. The manifestations of psychic trauma in a child who stays in hospital only a short time may be crying, becoming abnormally subdued, poor appetite, enuresis, or tantrums. After a long stay a child may show general apathy and on return home he may react with regression to infantile behavior such as enuresis, excessive clinging, nightmares, fearfulness, tantrums, or speech difficulties. The commonest fears are fear of the dark; of strangers; of nurses, doctors, or anyone dressed in white; and of strange places.

Anything that can be done to prevent or minimize the psychic trauma attendant on the hospitalization of children is almost sure to be worth the effort. Some admissions could be avoided through greater use of a good outpatient service. If a child must be admitted and it is not an emergency, a preliminary visit to the hospital will make the surroundings less unfamiliar especially if the child can meet the nurse who will take care of him and see that other children there are reasonably happy. Some hospitals give parents helpful pamphlets about preparing a child for hospitalization and provide the child with a coloring book emphasizing the pleasant aspects of the projected stay. On admission it is well to allow the mother to stay with the child until he is in bed and has had a few minutes to adjust to his surroundings, or, if the child is not too sick, he should be admitted to the ward playroom instead of bed. Adjustments are always easier in a children's hospital where personnel and facilities are all geared to the needs of the child. If the child must be admitted to a general hospital it should be to a children's ward. Daily visiting by parents should be encouraged. Even though a child cries when his parent leaves it is better that he be upset for a few minutes every day than to feel that he has been deserted or is being punished.

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The threat is a jeopardy to mental health but it also endangers physical health. This is because the worker suffering from "chronic anxiety" stands as a double hazard. On the one hand, personal tensions which may preoccupy his thoughts create a distinct accident peril to himself and fellow employees, particularly where men are clustered around machinery. At the same time, these off-the-job disturbances—whether manifested at work in gripes said aloud or in deep-seated suspicions smoldering silently—carry a germ of communicability which might infect co-workers as surely as a sneeze might infect them with the common cold.

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Whatever the cost shown on corporate ledgers, it is the debit in terms of human suffering which is felt the most. Because of the growing urgency of this multiphasic problem, the A. M. A. Board of Trustees last spring directed that a Joint Committee on Mental Health in Industry (under the Councils on Industrial Health and Mental Health) be formed to explore the field. The Committee is scheduled to meet for the first time this month. What it finds, and what it eventually will recommend, should illustrate again that the profession is just as concerned with community building as it is with personal healing.

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The threat is a jeopardy to mental health but it also endangers physical health. This is because the worker suffering from "chronic anxiety" stands as a double hazard. On the one hand, personal tensions which may preoccupy his thoughts create a distinct accident peril to himself and fellow employees, particularly where men are clustered around machinery. At the same time, these off-the-job disturbances—whether manifested at work in gripes said aloud or in deep-seated suspicions smoldering silently—carry a germ of communicability which might infect co-workers as surely as a sneeze might infect them with the common cold.

This is where the family doctor can play a starring role. By serving as a case-finder of maladjusted workers in his everyday practice, and following through on a broad scale with early therapy and preventive measures for all of his patients, the physician can achieve a dual purpose: transform a half-happy drudge into an effective and satisfied employee, and help solve a community health problem by raising the level of occupational fitness. The effort may also serve to raise the country's standard of living. For it is a fact that accidents, gold-bricking, excessive work absence, trouble-making, and other signs of employee maladjustment cause a tremendous dollar loss in industrial output. Two industrial psychiatrists in a book published this year estimated the annual loss at "hundreds of millions of dollars." The Chicago business magazine, *Commerce*, figures it closer to three billion dollars a year.

Whatever the cost shown on corporate ledgers, it is the debit in terms of human suffering which is felt the most. Because of the growing urgency of this multiphasic problem, the A. M. A. Board of Trustees last spring directed that a Joint Committee on Mental Health in Industry (under the Councils on Industrial Health and Mental Health) be formed to explore the field. The Committee is scheduled to meet for the first time this month. What it finds, and what it eventually will recommend, should illustrate again that the profession is just as concerned with community building as it is with personal healing.

COUNCIL ON MEDICAL SERVICE

ALABAMA COMMUNITY MEDICAL RATING SURVEY

The Community Rating Schedule, prepared under the direction of the Council's Committee on Medical and Related Facilities, has been utilized in several statewide surveys by medical associations. This schedule was designed to aid a community seeking more medical care to determine (a) the need priority, from the standpoint of the community, and (b) the desirability, from the standpoint of the physician. The state medical associations that have used the schedule have a means of distinguishing the communities that need more medical care from those that either do not need more physicians and/or could not support one.

In 1954, after participation in two regional placement service conferences, sponsored by the A. M. A.'s Council on Medical Service, the Committee on Public Relations of the Medical Association of the State of Alabama established a Physicians Placement Service under the direction of Mr. W. A. Dozier Jr., at that time the association's director of public relations and now the executive secretary of the state medical association. A comprehensive set of questionnaires was developed for the purpose of securing pertinent data from physicians seeking a location for practice and from communities seeking a physician. The physicians were given the information on communities seeking more medical care and the communities were supplied with the names of physicians interested in a location; after that it was up to the community and the physician to make their own contacts and arrangements. After the service had been in operation for four years, the Alabama Committee on Public Relations reviewed this phase of their program, as well as related statistics on the distribution of medical care in the state. It was noted that Alabama, with a 1957 population of 3,061,743 and 2,239 physicians, had a population-physician ratio of 1,367. The population-physician ratio by individual county ranged from 954 to 7,435, with a minimum of two physicians in any county. During each of the past five years there had been a net gain in the number of new physicians in the state over the total number lost by death and by removal to other states. It was found that approximately one-third of the physicians requesting location information had been directly or indirectly placed by the Alabama Physicians Placement Service. In order to better serve the steadily increasing number of physicians requesting location information and communities seeking additional medical care, the Committee felt that this would be an opportune time for a community medical rating survey.

Purpose

To those interested in making the survey, the sixfold purpose of the proposed study fell into the following areas: "(1) To determine where and to what extent additional medical care is needed; (2) To assist physicians in locating in communities where they can practice to the full extent of their training; (3) To evaluate the medical desirability of a given location from the standpoint of a physician seeking a place to practice; (4) To assist communities in improving their medical desirability rating; (5) To submit statistical information to corroborate the facts revealed in this survey; (6) To assist the State Board of Censors in placing to the best advantage the six students, now on state scholarships at the University of Alabama Medical College, who have agreed to practice in communities of 10,000 population or less, when they graduate."

Procedure

The Committee on Public Relations appointed a Survey Committee composed of J. Michaelson, M.D., Foley, chairman of the Committee on Public Relations; R. O. Rutland Jr., M.D., Fayette, chairman of the subcommittee on physician placement; and Mr. W. V. Wallace, Montgomery, executive assistant of the Medical Association of the State of Alabama. The president of the medical society in each county to be surveyed was requested to ask one member of his society to serve as a representative on the Committee when a town in his area was under evaluation.

Initially, the town clerks of 301 Alabama municipalities, with a population of 25,000 or under, were sent a questionnaire relative to the available medical care in the area. An accompanying letter of explanation was co-signed by Mr. W. V. Wallace, member of the Committee, and by Mr. E. E. Reid, executive director of the Alabama League of

Municipalities. In the cases where a response was not received to the first letter, a second letter and form covering county information was sent to the president of the local Chamber of Commerce. Concurrently, E. Julian Hodges, M.D., Scottsboro, president of the Alabama Academy of General Practice, mailed a similar questionnaire and letter of explanation to an Academy member in each county. Follow-up letters were sent where necessary to secure a response. These combined mailings brought replies from one or more towns in 62 of the 67 counties in the state.

After the questionnaires were returned and tabulated, the Survey Committee made a pilot study of three towns: Phil Campbell (population, 758), Coffeeville (211), and Grove Hill (1,443). Three weeks prior to the visit to each community, letters of explanation, including the date for a scheduled visit by the Committee, were sent to the communities and also to the president and secretary of the respective county medical societies, inviting them to attend the community medical evaluation meeting. At each of these three meetings the Community Rating Schedule was applied by the Committee in conjunction with the local group. Distribution was made in each community of the booklet, "YOUR TOWN . . . . Weighed in the Balance—CAN IT SUPPORT A DOCTOR?" This concise, informative booklet, prepared by the Medical Association of the State of Alabama, raises questions to aid the community in looking at itself, as a new citizen would see it, and offers "suggestions for keeping a doctor once he arrives."

After the compilation of the information secured through visits to these three communities, the program was outlined for the other areas to be visited. The Committee felt that the participation and cooperation of the local physicians was exceptionally good. Mass meetings had not been requested in any community, but attendance by local citizens sometimes reached 65. The visiting committee felt that the discussion on the part of the townspeople showed widespread interest in the problem and also careful preparation for the meeting.

Out of the eight months required to complete the survey, four weeks were used to visit the 38 communities located in 24 counties. Because of the thorough preliminary planning, an average of three communities could be visited each day.

The community surveys have been mimeographed and are being made available to physicians upon request either to the state association or to the Council on Medical Service.

Results

Results of the survey may be listed as follows: First, during the survey the Committee found much community information that would be valuable to a physician seeking a location for practice, but not previously listed in the Alabama Physicians Placement Service files. For example, a number of equipped medical facilities had been built by towns hoping to secure a physician; new industries had been built in a number of areas, as well as new churches, schools, and additional recreational facilities. Second, in the short time since the Community Rating Schedule has been applied, 2 of the 38 towns visited have secured a physician. Third, the 1953 Legislature of the State of Alabama created six state scholarships available each year for medical students at the University of Alabama Medical College in Birmingham. Students who are accepted for this program agree to practice in an Alabama town with a population of 10,000 or under. If the physician practices in the approved town for five years, he does not have to repay any part of the loan, otherwise he repays the loan as provided by the Alabama law. The first six physicians participating in this program are completing their internship in 1958. The survey offers excellent resource material for these physicians who plan to practice where there is a medical need. Fourth, according to the report prepared by the Committee, "if nothing else were accomplished except the personal contact made with these communities the Committee feels that the time, money and effort involved were justified in enhancing the relationship and prestige of the medical profession in Alabama with these communities."

From the survey statistics it is interesting to note that only 3 of the 62 counties responding to the mailed questionnaire had noticeable discrepancies between the physicians' opinion about the need for more physicians and the laymen's opinion on the matter. In one county the physicians felt the greater need, in the other two the laymen expressed a greater need. The population-physician ratios in these counties were 1,601, 1,258, and 954. The report that has been prepared does not mark the end of the Alabama Community Rating Program. The Survey Committee is to become a permanent part of the Committee on Public Relations. An evaluation visit will be made to each new community to be listed by the Alabama Physicians Placement Service.

The physicians of Alabama, their association staff, and the laymen of the state are to be commended, first, for their recognition of the fact that more medical care is needed in the state, second, for their cooperative study to determine where the need is greatest, and third, for their plans, already in operation, to do something concrete to bring more medical care to areas in need.

MEDICAL NEWS

CALIFORNIA

Dr. Farber Appointed Assistant Dean.—Dr. Seymour M. Farber, head of the continuing education program at the university medical center since 1955, has been appointed assistant dean of the University of California School of Medicine, San Francisco. Postgraduate medical education will be Dr. Farber's area of special responsibility. About 2,500 practicing physicians participate annually in the postgraduate courses at the medical center in cooperation with bay-area hospitals and in outlying northern California communities. These courses range from the one-day symposium to a full-time three-months' course in the use of radioisotopes. Other assistant deans of the medical school are Drs. Robert H. Crede and Malcolm S. Watts. Dr. Leon Goldman is associate dean.

New Cardiovascular Research Institute.—At the dedication of the Cardiovascular Research Institute October 30 at the University of California Medical Center, San Francisco, the principal speaker was the Honorable Earl Warren, Chief Justice of the United States Supreme Court. Others participating in the dedication were president Clark Kerr of the University of California Medical Center; Dr. John B. D. M. Saunders, dean of the School of Medicine, and Dr. Julius H. Comroe, Jr., director of the Cardiovascular Research Institute. The institute, which occupies the 13th floor of the new Herbert C. Moffitt Hospital, brings together members from 13 departments of the School of Medicine and more than 20 research fellows and trainees. Its laboratories, which have already been occupied for several months, are devoted to basic and clinical studies of the functions and diseases of the circulatory system and related organs. Dr. William J. Kerr, emeritus professor of medicine, proposed the establishment of the institute before World War II. After the war appropriations for building the Moffitt Hospital included funds to construct the shell of an additional floor for the eventual use of such an institute. Among the agencies and organizations that have made grants to complete this floor and purchase laboratory equipment are the U. S. Public Health Service, California Department of Health, and the Heart Associations of Alameda, Merced, San Diego, San Francisco and Yolo Counties.

CONNECTICUT

State Society's Clinical Congress.—The 33rd clinical congress of the Connecticut State Medical Society and the Yale University School of Medicine, New Haven, was held Nov. 5 in Hartford featuring nine illustrated lectures on new advances in surgery and patient care on subjects such as modern treatment of infectious diseases, care of staphyloccal infections in infants, use of drugs in kidney ailments, degeneration of the arteries, advances in gastrointestinal surgery, methods of nutrition in surgical patients, and treatment of illness in pregnancy. The program was arranged by the society's Committee on Postgraduate Education on which Dr. Arthur Ebbert Jr., assistant dean, Yale University School of Medicine, was chairman.

DISTRICT OF COLUMBIA

Annual Scientific Assembly.—The 27th annual scientific assembly of the Medical Society of the District of Columbia will be held in the Statler Hilton, Washington, D. C., Nov. 24-26. The scientific program will comprise a series of conferences, workshops, and panel discussions on congestive heart failure, fluid and electrolytes, recent advances in virology, problems in the management of surgical patients, toxemia of pregnancy, every-day psychiatry in general office practice, discussions on general questions, and clinicopathologic conference. There will also be a medical motion picture program, exhibits, luncheon meetings sponsored by the George Washington University Medical Society and the Georgetown University Medical Alumni Association. A benefit buffet supper for the Woman's Auxiliary's Nursing Fund and the annual dinner for doctors office staffs are planned. Active and life members are entitled to one ticket without charge to the Medical Society's luncheon on Monday. Nonmembers and associate and affiliate members may purchase luncheon tickets for $3.75 each.

GEORGIA

Conference on Nutrition in Athens.—"Better Foods for Better Nutrition," will be the theme of a joint Conference sponsored by the Divisions of Foods and Nutrition, and Food Procession of the University of Georgia to be held March 4-6, 1959, at The Center for Continuing Education, University of Georgia, Athens. This Conference is planned for persons engaged in research, extension, and teach-

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. *Programs should be received at least three weeks before the date of meeting.*

ing of foods and nutrition. Special attention will be given to industrial and institutional problems in processing, handling, and serving foods.

ILLINOIS

Chicago

Lecture on Growth and Genetics.—The Chicago Medical School and the Squibb Centennial Lecture Committee will present Theodore T. Puck, Ph.D., chairman, department of biophysics, University of Colorado Medical Center, Denver, in a lecture, Nov. 10, in the Sarah Morris Amphitheatre, Michael Reese Children's Hospital, at 4:00 p. m. The subject will be "Growth and Genetics of Somatic Mammalian Cells in Vitro." Again, on Nov. 12, at 9:30 a. m., at Mount Sinai Hospital, Dr. Puck will address a seminar on the application of single cell plating techniques to problems in medicine. Both meetings are open to those interested.

Heart-in-Industry Conference.—The 6th Heart-in-Industry conference, sponsored by the Chicago Heart Association and the Chicago Association of Commerce and Industry, will be Friday, November 14, at the Hotel Sherman. This conference was made possible by a grant from the Visking Corporation of Chicago as a memorial to the late Gustav Freund II. In several workshop groups, the discussions will concern a review of two case histories of workers with cardiac disease. The featured speaker at the luncheon will be Dr. Paul Dudley White of Boston. Following adjournment at 2:00 p. m., all participants are invited to attend a special discussion by the Illinois Governor's committee on employment of the physically handicapped in the Bal Tabarin Room of the Sherman Hotel.

KENTUCKY

State Medical Election.—At the annual meeting of the Kentucky State Medical Association, Louisville, Sept. 23-25, the following officers were elected: Drs. Robert W. Robertson, Paducah, president; Irvin Abell Jr., Louisville, president-elect; Marvin A. Lucas, Louisville, Thomas O. Meredith Jr., Harrodsburg, and Lillard F. Beasley, Franklin, vice-presidents; Woodford B. Troutman, Louisville, secretary (re-elected); and Delmas M. Clardy, Hopkinsville, treasurer.

MARYLAND

Dr. Wilbur Will Give Friedenwald Lecture.—The 11th annual Friedenwald Memorial Lecture on the diagnosis and management of functional gastrointestinal disorders will be given November 11 at 5:00 p. m. at the University of Maryland School of Medicine, Baltimore, by Dr. Dwight L. Wilbur, clinical professor of medicine at Stanford University School of Medicine, San Francisco, and president of the American College of Physicians.

MASSACHUSETTS

Benjamin Waterhouse Society.—The Benjamin Waterhouse Medical History Society will meet at the Massachusetts Memorial Hospital, Nov. 17, when, following a dinner for members and guests, Dr. Carl W. Walter, associate clinical professor of surgery, Harvard Medical School, Boston, and surgeon, Peter Bent Brigham Hospital, will lecture on "Asepsis in the 19th Century." All persons interested are invited to attend the medical history session. The president of the society is Dr. Lamar Soutter and the secretary is Dr. John J. Bryne, both of Boston.

Dr. Hastings Goes to California.—A. Baird Hastings, Ph.D., head of the biological chemistry department at Harvard, will retire December 31 then join the Scripps Clinic and Research Foundation at LaJolla, California, where he will continue his research in intermediary metabolism and in the application of biochemistry to the study of disease. At Harvard he will become Hamilton Kuhn of biological chemistry emeritus, the second to hold that professorship; the first of whom was Dr. Otto K. O. Folin. Dr. Hastings was appointed professor of physiological chemistry at the University of Chicago in 1926. He joined the faculty at Harvard in 1935 as head of the biological chemistry department.

The William James Lectures.—Harvard University has announced that Donald B. Lindsley, Ph.D., professor of psychology and physiology, University of California School of Medicine, Los Angeles, will give nine William James Lectures on successive Mondays beginning October 20; thus the next lecture in this series will be November 10 in the Allston Burr Lecture Hall A, 4:15 p. m. The general subject of the series is "Brain Organization and Behavior." The announcement states that the lectures will deal with new knowledge of the nervous system that has certain importance. Prof. Lindsley is said to be best known for his work with the electroencephalograph. Formerly he was a fellow of the National Research Council in the Harvard University physiology department, assistant professor at Brown University, and professor of psychology at Northwestern University.

MICHIGAN

University Gifts and Grants.—Gifts and grants accepted by Wayne State University's Board of Governors, Aug. 20, included $120,670 from the U. S. Public Health Service, to be used in various research projects. From the Michigan Heart Association, $53,050.50 will be used to continue research on heart disease. A total of $45,500 was accepted from the McGregor Fund, of which the department of psychiatry will get $24,000, while $21,500 will support a program in psychotherapy over a two year period under the direction of Ross Stagner, Ph.D., College of Liberal Arts. The Kresge Foundation presented $31,000 to continue research in neurological sciences under the direction of Dr. Elisha S. Gurdjian of the College of Medicine. The Receiving Hospital Corporation gave $25,000 to be added to the fund to defray salaries of individuals employed in departmental research activities at the College of Medicine.

MINNESOTA

Surgical Travel Fund.—The Regents of the University of Minnesota accepted in July, 1952, from the late Dr. Walter M. Boothby of the Mayo Clinic and Dr. William R. Lovelace, II, of the Lovelace Foundation, Albuquerque, New Mexico, a gift of $18,000, representing accumulated royalties from the manufacture of the Boothby-Lovelace oxygen mask. This fund was set up by Drs. Boothby and Lovelace as a surgical travel fellowship under the direction of the Department of Surgery at the University of Minnesota. The earned interest of the fund is being used to permit some of the Trainees of the Department of Surgery to visit other clinics and medical schools.

NEW JERSEY

Slide Seminar on Unusual Tumors.—The eighth annual slide seminar on unusual tumors, sponsored by the New Jersey Society of Pathologists and the New Jersey State Health Department, will be held December 6 at the Essex House, Newark, New Jersey at 2:00 p. m. Case histories and micro slides are being mailed to all members of the society. Dr. Arthur P. Stout of Columbia University College of Physicians and Surgeons, New York, will act as moderator. Dr. Jacob Churg of Teaneck, chairman of the program committee, and Elmer L. Shaffer, Ph.D., will represent the New Jersey State Department of Health. All interested physicians are invited to attend.

NEW YORK

Army Reserve Hospital Moves to New Headquarters.—The 307th General Hospital, a 1,000 bed U. S. Army Reserve Unit, outgrew the space and facilities at its training center on West 44th Street, New York City, and has moved to new headquarters on the St. John's University campus at Hillside, Jamaica. This unit, which is now at full strength, underwent its annual summer training period in August at Ft. Dix, New Jersey. Most of the commissioned and non-commissioned officers have had active service in either World War II or Korea and nearly all members of the hospital detachment are either high school or college graduates. Col. Gerald D. Dorman, M. C., New York City, a member of the House of Delegates of the American Medical Association, has been in command of the 307th General Hospital ever since it was activated in July, 1955.

Wadsworth Lecture.—The ninth Augustus B. Wadsworth Lecture is to be given at the Division of Laboratories and Research, New York State Department of Health, Albany, Nov. 20. Dr. Albert H. Coons, investigator for the American Heart Association and visiting professor of bacteriology and immunology, Harvard Medical School, Boston, will speak on "Stalking with Antibodies." The lectureship was established in 1950 by the staff of the Laboratories and the Council of the New York State Association of Public Health Laboratories.

New York City

Aaron Brown Lecture.—The third annual Aaron Brown lecture, sponsored by the Phi Delta Epsilon Fraternity, Beta XI Chapter, will be delivered February 14, 1959 at 11:00 a. m. at Georgetown University School of Medicine, Washington, D. C. Dr. Bernard J. Alpers, Philadelphia, will speak on "Compensating Mechanisms in Cerebral Blood Flow."

Personal.—Dr. Ammon Walter Hoover has been appointed regional medical officer of the Pennsylvania Railroad's New York region succeeding Dr. John D. Talbert, resigned.——Benjamin W. Zweifach, Ph.D., an investigator of the American Heart Association giving full time to research at New York University College of Medicine, has been promoted to full professor in the department of pathology.

Health Forums for the Public in Brooklyn.—The Brooklyn office of the New York City health department, the Brooklyn Academy of Arts and Sciences and the New York Journal American have joined the Kings County Medical Society in sponsoring a series of health talks to be given at the Brooklyn Academy of Music as follows:

Nov. 19, 1958—Diabetes
Dec. 3, 1958—Tuberculosis
Mar. 4, 1959—Dental Health
Apr. 1, 1959—Cancer
May 6, 1959—Nutrition

Lectures for the Laity.—The 24th series of Lectures for the Laity, presented by the New York Academy of Medicine, 2 East 103 St., began Nov. 5 with the Linsly R. Williams Memorial Lecture, "Fact, Fancy and Corruption in the Interpretation of Science to the Public," by Wallace F. Janssen of the U. S. Food and Drug Administration. The next lecture in this series will be Nov. 19, 8:30 p. m., by Paul F. Lazarsfeld, Ph.D., Columbia University College of Physicians and Surgeons, on "Paths and Roadblocks Between the Natural and the Social Sciences," and on Dec. 3, 8:30 p. m., Elmer Hutchisson, Ph.D., director of the American Institute of Physics, will discuss "Liberal Education in an Age of Science."

Medical Mobilization for Disaster.—A symposium on medical mobilization for disaster was held at the Kings County Hospital Center in Brooklyn Oct. 25, sponsored by the surgery department of the State University of New York Downstate Medical Center and the trauma service of the Kings County Hospital Center, and in cooperation with the New York State Department of Civil Defense. The speakers were Col. Joseph R. Shaeffer, of the Walter Reed Army Institute of Research, Washington, D. C., Dr. Roald N. Grant, professor of surgery, New York University College of Medicine, Dr. Robert H. Kennedy, director of surgery at the Beekman Downtown Hospital, and Dr. James M. Hershey, of the New York State Department of Health.

NORTH CAROLINA

New Biology Building at Duke.—The site for a new biology-forestry building at Duke University just south of the Physics Building has been cleared and construction is expected to begin this fall. The U. S. Public Health Service has approved a $234,500 grant toward the cost of this building, which is expected to cost a total of 3½ million dollars, and provide facilities for research work in physiology, cytology, serology, biochemistry, biophysics and nuclear chemistry. The zoology department, the botany department and the school of forestry each will occupy a separate wing of the building.

PENNSYLVANIA

Philadelphia

Foundation Grants in New Fields.—Four University of Pennsylvania medical scientists have been awarded grants totaling $245,382 by the March of Dimes of the National Foundation (formerly the National Foundation for Infantile Paralysis). The four scientists are Dr. Arthur B. DuBois, associate professor of physiology and pharmacology; Dr. William Dunbar, coordinator of the rehabilitation program at the University; William F. McLimans, Ph.D., associate professor of research medicine; Dr. Hilary Koprowski, director of the Wistar Institute. The first medical research grants to come to the Philadelphia area from the Foundation under its new policy of supporting work in fields other than poliomyelitis will be in the fields of virus research, tissue culture cell changes, scoliosis, and rehabilitation.

TEXAS

Medical Problems of Space Flight.—A symposium on the foregoing subject at Randolph Air Force Base, Texas, Oct. 28, was sponsored by the School of Aviation Medicine and the Bexar County Medical Society. Col. Paul A. Campbell, chief of the school's Space Medicine Division, surveyed recent research on factors affecting human performance and survival in space. Capt. Jerrold L. Wheaton's paper dealt with the effects of "Isolation and Sensory Deprivation" on flyers under conditions they will meet on flights beyond the earth's atmosphere. Lt. Col. George R. Steinkamp, chief, department of astroecology, discussed studies made by the school in "Closed Ecological Systems."

After dinner, the program continued with a paper on "The Zero Gravity State," by Capt. Willard R. Hawkins of the Space Medicine Division. Dr. Hubertus Strughold, advisor for research concluded the program with a look at the future of human flight in space. The program was arranged by Col. Hamilton B. Webb, chief, Aviation Medicine Division, and Dr. Billy B. Markette, of San Antonio, representing the county medical society. Presiding were Maj. Gen. Otis O. Benson Jr., commandant of the School of Aviation Medicine, and Dr. Charles W. Tennison, president of the Bexar County Medical Society.

UTAH

State Medical Election.—At the annual meeting of the Utah State Medical Association, Sept. 9-12, the following officers were elected: president, Dr. Ulrich R. Bryner, Salt Lake City; president-elect, Dr. I. Bruce McQuarrie, Ogden; honorary president, Dr. Arthur J. Murphy, Salt Lake City; secretary, Dr. J. Poulson Hunter, Salt Lake City; treasurer '60, Dr. Robert M. Dalrymple, Salt Lake City; executive secretary, Mr. Harold Bowman, Salt Lake City.

GENERAL

New Address of Science Foundation.—The National Science Foundation, an independent agency of the United States Government, announces that all offices are now centralized in one building at 1951 Constitution Avenue, Washington 25, D. C., Telephone, Sterling 3-2140.

Society News.—The American Board of Anesthesiology, at its annual meeting October 3, elected the following officers: president, Dr. Curtiss B. Hickcox, Hartford, Conn.; vice president, Dr. Frederick P. Haugen, Portland, Ore.; secretary-treasurer, Dr. Forrest E. Leffingwell, Pasadena, Calif.

Medical Clinics Election.—At the recent annual meeting of the American Association of Medical Clinics in San Francisco, Dr. Joseph W. St. Geme, of Los Angeles, was elected president; Dr. Russell V. Lee, Palo Alto, Calif., vice-president; and Dr. Joseph B. Davis, of Marion, Ind., secretary-treasurer. The next meeting of the association will be at the Blackstone Hotel, Chicago, Sept. 24-26, 1959.

F.B.I. Wants Help in Locating Cole and Conley.—The Federal Bureau of Investigation is trying to locate the following two persons who may apply for treatment at some physician's office:

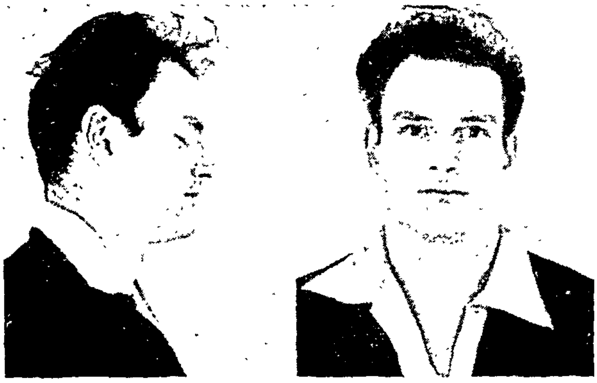

Fig. 1.—George Edward Cole.

George Edward Cole, alias George E. Cole, George Edward Puckett, George Edward Cole Puckett. Cole is alleged to have shot and killed a San Francisco police officer Dec. 30, 1956, during an attempted holdup of a tavern. Cole fled from California and a federal warrant for his arrest has been issued. This fugitive is armed and is considered extremely dangerous. Cole was born March 24, 1927, in Philadelphia. His height is 6 ft. 1 in.; weight 160 to 178 lb.; build, medium, hair, brown, receding; eyes, brown; complexion, medium; race, white; nationality, American; occupations, bus driver, truck driver, typist. He has a pit scar on outside corner of right eye, small cut scar on inside of left wrist, appendectomy scar, tattoo small heart and names "Mom" and "Dad" and letters "GP" or "SP" on left forearm; tattoo eight-point star on back of left hand; wears full upper denture.

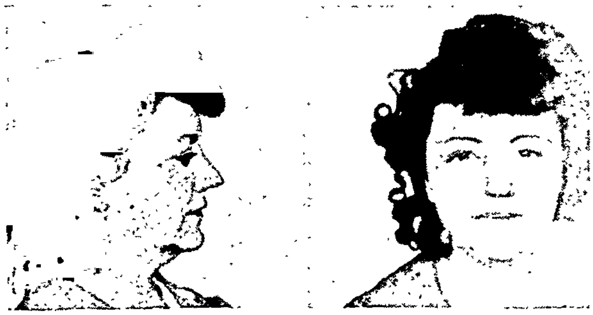

Fig. 2.—Yvonne Conley.

When Cole fled San Francisco it is believed he was accompanied by Yvonne Conley and it is possible this woman is still with him. Yvonne Conley has used the following aliases: Yvonne B. Blunt, Yvonne Broome, Lee Burke, Starr Burk, Yvonne Galipeau, Yvonne Hales, Mrs. V. Q. Hales, Yvonne Mason, Jean Noble, June Noble, and Lee Walker.

Conley has used drugs which in some states require a doctor's prescription. She has been treated for cirrhosis of the liver. She has used Empirin Compound, liver extract, vitamin B_{12}, Premarin, and Amesiec. She was born July 19, 1913, at St. Pierre, Manitoba, Canada. Her height is 4 ft. 11½ in.; weight, 140 lb.; build, heavy; hair, brown; eyes, brown; complexion, dark; race, white. She has a ½ in. cut scar on forehead between eyebrows, ½ in. cut scar under chin, scar on back of left hand, hysterectomy scar, numerous needle marks on hips; some upper teeth reportedly are missing. F.B.I. Number 1,055,332. The San Francisco Police Department, California, holds a warrant charging Conley as Yvonne Galipeau as an accessory to murder.

Any person having information that might assist in locating one or both of these persons is requested to immediately notify the Director of the FBI, Department of Justice, Washington 25, D.C., or the special agent in charge of the nearest FBI Division, the telephone number of which appears on the first page of local telephone directories.

Since Cole is considered extremely dangerous, no person should take any action which would place his or her life in jeopardy.

Grants to Aid Mental Health Workers.—The National Institute of Health, Washington, D. C., has granted $90,000 to the Southern Regional Education Board, 881 Peachtree Street, N. E., Atlanta 9, Georgia, for grants for in-service training of workers in mental institutions in southern states. These grants are available to anyone working on the staff of the mental hospital or training school, including administrative, professional and operational personnel. Persons interested may write to the above address in Atlanta.

Inter-Society Cytology Council.—When this group meets at the Hotel Statler, New York City, Nov. 13-15, the program will include panel discussions on cytology of disseminated cancer, in-situ bronchogenic carcinoma, and round-table discussions on cytology and pathology of early endometrial cancer, sessions on hormonal cytology, gynecologic cytology, cytology of irradiation, a symposium on the cell, medical motion pictures, and scientific and technical exhibits. Members and guests are invited to the annual banquet Thursday evening. Dress is optional. The president of the society is Dr. Emerson Day, New York City, and the president-elect is Dr. John R. McDonald, Rochester, Minn. Information may be obtained from the secretary, Dr. Paul F. Fletcher, 634 N. Grant Blvd., St. Louis 3.

Meeting of Gastroenterology Research Group.—The general subject for the meeting of the Gastroenterology Research Group in Chicago, October 31, was "Absorption of Water and Electrolytes from the

Gastrointestinal Tract." The panel moderated by Dr. Chas. A. M. Hogben, Washington, D. C. and the members of the panel, Eugene D. Grim, Ph.D., of the University of Minnesota; Dr. Isidore S. Edelman of the University of California Medical Center, San Francisco; Jack M. Ginsburg, Ph.D., of the University of Cincinnati College of Medicine; Drs. John F. Scholer of Palo Alto, California; Chas. F. Code, Mayo Clinic, Rochester; John T. Farrar of Cornell University Medical College, New York, and Donald W. Seldin of the University of Texas Southwestern Medical School, Dallas.

Interstate Postgraduate Medical Association.—The 43rd international meeting of the Interstate Postgraduate Medical Association will be at the Statler-Hilton Hotel, Cleveland, Ohio, November 10-13, under the presidency of Dr. Tom D. Spies, Birmingham, Alabama. In addition to a scientific program featuring distinguished speakers on various subjects, Mr. Charles F. Kettering, scientist, will address the annual dinner Wednesday evening on "An Inventor Looks at Science and Medicine." There will be exhibits, teaching films and a program of entertainment for the ladies. The registration fee is $10.00 except for physicians in the armed forces, residents and internes, graduate nurses, technicians and dieticians ($2.00). A complete program of this meeting may be obtained by writing to the Interstate Postgraduate Medical Association, Box 1109, Madison 1, Wis.

Cancer Seminar in Tampa, Florida.—The ninth biennial meeting of the Southeastern States Cancer Seminar will be at the Hillsboro Hotel, Tampa, Fla., Nov. 19-21, presented by the Hillsborough County Medical Association and sponsored by the Florida Division of the American Cancer Society and the Florida State Board of Health, in cooperation with the Florida Medical Association. In addition to panel discussions on various aspects of cancer, there will be individual presentations including among others the following guest speakers: Drs. Joseph P. Concannon, Jefferson Medical College of Philadelphia; August R. Crane, University of Pennsylvania School of Medicine, Philadelphia; Ruben Flocks, State University of Iowa College of Medicine, Iowa City; Simon Kramer, Jefferson Medical College of Philadelphia; Stanley L. Lane, Albert Einstein College College of Medicine of Yeshiva University, New York; Joseph V. Meigs, Harvard Medical School, Boston; James L. Pipkin, Baylor University Post-graduate School of Medicine, Houston, Texas; James D. Rives, Louisiana State University School of Medicine; Herbert E. Schmitz, Stritch School of Medicine of Loyola University, Chicago; Max M. Strumia, University of Pennsylvania Graduate School of Medicine, Philadelphia; and Kenneth W. Warren, of the Lahey Clinic, Boston.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Oct. 11, 1958		Oct. 12 1957 Total
	Paralytic Type	Total Cases	
New England States			
Maine	..	..	..
New Hampshire	..	..	..
Vermont	..	..	..
Massachusetts	2	2	1
Rhode Island	..	..	..
Connecticut	3	3	3
Middle Atlantic States			
New York	11	16	12
New Jersey	7	17	1
Pennsylvania	3	7	..
East North Central States			
Ohio	8	19	6
Indiana	5	9	3
Illinois	3	10	22
Michigan	36	98	23
Wisconsin	2	3	2
West North Central States			
Minnesota	3	4	1
Iowa	..	..	1
Missouri	14	15	2
North Dakota	..	3	..
South Dakota	..	..	..
Nebraska	..	3	1
Kansas	..	3	..
South Atlantic States			
Delaware	1	1	1
Maryland	1	1	2
District of Columbia	..	..	1
Virginia	10	12	5
West Virginia	5	17	1
North Carolina	..	..	8
South Carolina	..	1	5
Georgia	..	..	1
Florida	7	12	3
East South Central States			
Kentucky	2	4	4
Tennessee	6	8	4
Alabama	..	1	4
Mississippi	2	3	1
West South Central States			
Arkansas	..	..	..
Louisiana	..	..	5
Oklahoma	..	..	2
Texas	10	16	14
Mountain States			
Montana	1	1	2
Idaho	..	..	..
Wyoming	..	1	..
Colorado	..	1	1
New Mexico	1	4	2
Arizona	1	2	3
Utah	..	..	..
Nevada	..	..	..
Pacific States			
Washington	..	5	1
Oregon	..	..	..
California	8	9	19
Territories and Possessions			
Alaska	..	..	..
Hawaii	2	2	1
Puerto Rico	..	..	1
Total	154	313	169

American College of Cardiology.—The seventh interim meeting of the American College of Cardiology will be at the Jung Hotel, New Orleans, La., Nov. 20-22. The presentations before the scientific session Thursday afternoon will be by the New Orleans group. Fireside conferences comprising five individual presentations will be held Thursday evening, 8:30 to 10 p. m. A symposium on "Diagnosis of Arterial Disease" will comprise the second scientific session Friday morning, and a symposium on "Medical Treatment of Arterial Disease" will be held Friday afternoon. On Saturday morning will be the symposium on "Surgical Treatment of

Peripheral Arterial Disease," and six scientific papers will be presented by members on Saturday afternoon. The program for the ladies includes a luncheon Thursday and then a tour of the famous French Quarter. After breakfast at Brennan's Friday morning, buses with guides will take the ladies on a tour of the city. There will be a banquet Friday evening (dress optional).

FOREIGN

Smallpox in Pakistan.—The government of Pakistan recently requested help from the World Health Organization in dealing with the worst smallpox epidemic Pakistan has experienced since that country was created in 1947. In complying, WHO shipped two million doses of smallpox vaccine to Pakistan. According to the September Chronical of the WHO, preliminary estimates indicate that in the first five months of 1958 there were more than 35,500 smallpox cases, with 15,800 deaths in Pakistan. In 1957 the number of cases of smallpox in this country was said to be almost 25,000.

EXAMINATIONS AND LICENSURE

MEDICAL SPECIALTY BOARDS

American Board of Anesthesiology: *Oral.* Phoenix, April 5-10. All applications already on file. Sec., Dr. Forrest E. Leffingwell, 217 Farmington Ave., Hartford 5, Conn.

American Board of Dermatology: *Written.* Several Cities, Oct. 5. *Oral.* Oklahoma City, Jan. 15-18, 1960. Sec., Dr. Beatrice M. Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine: *1959 Schedule—Written,* Oct. 19. Final date for filing application is May 1. *Oral.* For candidates in the South and Southwest, New Orleans, Feb. 3-6. Final date for filing application is Jan. 1. *Oral.* For candidates in the Midwest. Chicago, April 15-18. Final date for filing application is Jan. 1. *Oral.* For candidates on the West Coast. Final date for filing application is March 1. *Oral.* For candidates on the East Coast, Nov. 6-7, 9-10. Final date for filing application is March 1. *Examination in the Subspecialties. Gastroenterology.* Philadelphia, April 17-18. Final date for filing application is Feb. 1. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

American Board of Neurological Surgery: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Part I.* Various parts of the United States and Canada, January 16. Candidates notified of their eligibility to participate in Part I must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the written examination unless the case abstracts have been received in the office of the Secretary. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written,* qualifying test (Part I), Various Cities, Jan. 26. *Oral.* Philadelphia, June 3-6. Sec., Dr. Merrill J. King, 22 White St., Rockland, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, Jan. 21-23, 1959. Deadline for receipt of applications was Aug. 15. Sec., Dr. Sam W. Banks, 116 South Michigan Avenue, Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 5-9. Final date for filing application is February. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pediatrics: *Oral.* New York, Dec. 5-7. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation: *Written, Part I,* and *Oral, Part II.* Philadelphia, June 12-13. Final date for filing application is February 15. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery: *Oral and Written.* Boston, May 9-11. Final date for submitting case reports is Jan. 1. Corresponding Secretary, Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8, Mo.

American Board of Preventive Medicine: *Written. Public Health.* Regional, Apr. 9-11. *Occupational Medicine.* Chicago, Apr. 17-19. *Aviation Medicine.* Los Angeles, Apr. 24-26. Final date for filing application for all three examinations is Jan. 15. Sec., Dr. Tom F. Whayne, 3438 Walnut St., Philadelphia 4.

American Board of Proctology: *Oral and Written.* Philadelphia, September. Final date for filing application is March. Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

American Board of Psychiatry and Neurology: New York City, Dec. 15-16; New Orleans, Mar. 16-17. Training credit for full time psychiatric and/or neurologic assignment in unapproved military programs or services between the dates of Jan. 1, 1950 and Jan. 1, 1954 will be terminated on Jan. 1, 1959. Sec., Dr. David A. Boyd, 102-110 Second Ave. S. W., Rochester, Minn.

American Board of Radiology: *Regular Examination.* Washington, D. C., Dec. 8-11. Final date for filing application was July 1. *Special examination in Nuclear Medicine for those diplomates in Radiology or Therapeutic Radiology.* Washington, D. C., Dec. 6. Final date for filing application was Oct. 1. *Special Examination.* Cincinnati, Mar. 16-19, 1959. Final date for filing application is Nov. 1. Candidates completing training June 30, 1959 are not eligible for the Spring 1959 examinations. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: Written examinations (Part I) will be held at various centers in the United States, Canada, Hawaii, Puerto Rico, and certain military centers abroad on December 3. The date of the Fall examination in *Part I* has been changed from the last Wednesday of October as announced in its current Booklet of Information to December 3, 1958. Thereafter, examinations in Part I will be held once annually, on the first Wednesday of December. The closing date for filing applications was August 1. *Part II.* New York City, Dec. 15-16; Houston, Tex., Jan. 12-13; New Haven, Conn., Feb. 9-10; Durham, No. Car., March 9-10; San Francisco, April 13-14; Indianapolis, May 11-12; Columbus, Ohio, May 14-15. Sec., Dr. John B. Flick, 1617 Pennsylvania Blvd., Philadelphia 3.

Board of Thoracic Surgery: *Oral.* Los Angeles, April. Final date for filing application is Dec. 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

American Board of Urology: *Written Examination.* Twenty-five cities throughout the country, Dec. 5. The oral will be given in Chicago in February 1959. Sec., Dr. William Niles Wishard, Jr., 30 Westwood Road, Minneapolis 26.

DEATHS

Bliss, Rodney Waldo, Oklahoma City, Okla.; Rush Medical College, Chicago, 1904; professor of medicine emeritus and chairman of the department at the University of Nebraska College of Medicine, Omaha; member of the Nebraska State Medical Association; an associate member of the American Medical Association; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served on the staffs of the Nebraska Methodist and University of Nebraska hospitals; died Sept. 5, aged 80.

Boyden, Guy Lee Ⓜ Portland, Ore.; born in Brookings County, S. D., Feb. 17, 1885; Northwestern University Medical School, Chicago, 1911; on July 1, 1911 entered the Mayo Clinic, Rochester, Minn., where he served an internship and residency at St. Mary's Hospital; from 1913 to 1921 practiced medicine in Pendleton, Ore.; veteran of World War I; clinical professor and head, department of otology, rhinology and laryngology, University of Oregon Medical School; was the guest of honor at a meeting in 1958 in San Francisco of the Section on Laryngology, Otology and Rhinology of the American Medical Association, of which he was vice chairman in 1954-1955; past-president of the Oregon Academy of Ophthalmology and Otolaryngology and the Pacific Coast Ophthalmology and Otolaryngology Society; member of the American Laryngological, Rhinological and Otological Society, of which he was at one time vice-president and western chairman; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; associated with the Multnomah Hospital, Emanuel Hospital and St. Vincent's Hospital and Doernbecker Memorial Hospital for Children; in 1955 received an honorary doctor of science degree from South Dakota State College of Agriculture and Mechanic Arts, Brookings; died Sept. 9, aged 73.

Brown, Charles W., Ⓜ St. Louis; St. Louis College of Physicians and Surgeons, 1890; formerly practiced in Caruthersville, Mo.; died Sept. 4, aged 93.

Buck, Samuel Bernice, Anderson, Mo.; University of Maryland School of Medicine, Baltimore, 1904; died in the Veterans Administration Hospital, Fayetteville, Ark., Aug. 28, aged 78.

Carnathan, William George Ⓜ Dallas, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1921; specialist certified by the American Board of Psychiatry and Neurology; service member of the American Medical Association; member of the American Psychiatric Association; at one time on the faculty of his alma mater and Baylor University College of Medicine; from 1942 to 1946 associated with the Texas State Guard; on the staff of the Veterans Administration; died in the Dallas Medical and Surgical Clinic July 8, aged 67, of myocardial infarction.

Cates, Albert, Oklahoma City, Okla.; Memphis (Tenn.) Hospital Medical College, 1906; an associate member of the American Medical Association; served as county health superintendent of public health; died Sept. 4, aged 78, of hypertension and cerebrovascular disease.

Colleran, John Patrick, South Deerfield, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1928; member of the Massachusetts Medical Society; school physician in South Deerfield; on the staffs of the Farren Memorial Hospital in Montague City, and Franklin County Public Hospital in Greenfield; died Sept. 8, aged 55, of cancer of the pancreas.

Cook, Byron Llewellyn Ⓜ Minden, La.; Louisiana State University School of Medicine, New Orleans, 1938; member of the American Academy of General Practice; past-president of the Fourth District Medical Society; veteran of World War II; died in the Schumpert Sanitarium, Shreveport, Aug. 31, aged 44, of disseminated lupus erythematosus.

Cosgrove, Edgar Francis Ⓜ Pittsburgh; University of Pittsburgh School of Medicine, 1936; assistant professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; veteran of World War II; past-president of the Western Pennsylvania Heart Association; associated with Woman's Hospital and the Presbyterian Hospital, where he died Sept. 3, aged 49.

Cowles, Robert Sebastian Ⓜ Greeneville, Tenn.; University of Nashville Medical Department, 1910; past-president of the Greene County Medical Society; for many years county health officer; died Aug. 27, aged 66.

Criss, Ralph J., Coffeeville, Miss; University of Nashville (Tenn.) Medical Department, 1904; died Sept. 11, aged 82.

Davis, James Ethelbert Ⓜ Dexter, Mich.; born in Woodstock, Ont., Oct. 3, 1870; Detroit College of Medicine, 1896; also a graduate in pharmacy; for many years professor of pathology at his alma mater, now known as the Wayne University College of Medicine; served as director of the department of pathology at the University of Detroit Dental

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Ⓜ Indicates Member of the American Medical Association.

Department, and extramural lecturer in pathology at the University of Michigan Graduate Medical School; originated the Beaumont Lectureship Foundation; past-president and for many years trustee of the Wayne County Medical Society; past-president of the Alumni Association of the Detroit College of Medicine and Surgery; for many years secretary of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; served on the staffs of the Providence, St. Mary's, and Receiving hospitals; died in the Woodstock (Ont.) General Hospital Aug. 16, aged 87, of coronary thrombosis.

Deak, Alexander Paul Ⓜ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1924; died in the Presbyterian Hospital Sept. 2, aged 60.

Decatur, Edwin Forrest Ⓜ Kingston, N. H.; Tufts College Medical School, Boston, 1939; member of the American Society of Anesthesiologists; chief of the anesthesiology department at Exeter (N. H.) Hospital, where he was past-president of the medical staff, and where he died Aug. 29, aged 45.

De Pree, John Nelson Warren Ⓜ Palouse, Wash.; Rush Medical College, Chicago, 1939; member of the American Academy of General Practice; on the staff of the Gritman Memorial Hospital in Moscow; served as president of Whitman County Medical Society; died in Spokane Sept. 4, aged 49.

Dias, Joseph Lawrence, Tampa, Fla.; Columbia University College of Physicians and Surgeons, New York City, 1903; an associate member of the American Medical Association; at one time practiced in Newark, N. J., where he was on the staff of Hospital of St. Barnabas; member of the Medical Society of New Jersey; formerly on the staff of the Veterans Administration Hospital in Lake City; died in St. Joseph's Hospital Sept. 3, aged 77, of cerebrovascular thrombosis and cancer of the pancreas.

Dixon, Robert Emmett Ⓜ Alberta, Ala.; University of Alabama School of Medicine, Mobile, 1917; died Aug. 22, aged 66, of leukemia.

Downes, John Raymond Ⓜ Newark, Del.; University of Maryland School of Medicine, Baltimore, 1904; formerly health officer of Queen Anne County; served as city councilman; deputy state health officer for rural New Castle County from 1931 to 1949 when he retired; veteran of World War I; died in the Veterans Administration Hospital, Wilmington, Sept. 4, aged 79.

Doyle, Francis Joseph, Fort Lauderdale, Fla.; Long Island College Hospital, Brooklyn, 1902; died July 18, aged 80, of congestive arteriosclerotic heart disease.

Durburg, John Russell Ⓜ Chicago; Loyola University School of Medicine, Chicago, 1934; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; served on the faculty of his alma mater; veteran of World War II; member of the staff of St. Joseph's Hospital; died in Cape May, N. J., Sept. 15, aged 48.

Everist, Guy Vernon Ⓜ San Diego, Calif.; St. Louis University School of Medicine, 1935; veteran of World War II; served on the staffs of various Veterans Administration hospitals; found dead in his car Sept. 3, aged 50.

Foot, Nathan Chandler, New York City; born in New York City July 27, 1881; Columbia University College of Physicians and Surgeons, New York City, 1907; emeritus professor of surgical pathology at Cornell University Medical College, where he was professor of surgical pathology from 1932 to 1948, and where he did research in cancer detection in the department of pathology; from 1912 to 1919 assistant instructor and instructor of pathology at Harvard Medical School, Boston, where he became instructor of comparative pathology, serving until 1922; assistant professor, associate professor, and professor of pathology at University of Cincinnati College of Medicine from 1922 to 1932; served as research consultant in pathology at the Armed Forces Institute in Washington, D. C.; an associate member of the American Medical Association; fellow of the College of American Pathologists; member and past-president of the American Association of Pathologists and Bacteriologists; member of the American Society of Experimental Pathology, New York Academy of Medicine, New York Pathological Society, of which he was past-president, Harvey Society, American Association for the Advancement of Science, Phi Rho Sigma, Sigma Xi, and Alpha Omega Alpha; corresponding member of the Pathological Society of Argentina; member of the Intersociety Cytology Council; past-president of the American Board of Pathology; served as president of the New York Physicians Art Club; surgical pathologist at the New York Hospital from 1932 to 1948 when he became consultant; author of two textbooks, "Pathology in Surgery" and "Identification of Tumors"; died in the New Rochelle (N. Y.) Hospital Sept. 4, aged 77.

Freeman, Rowland Godfrey Jr., Ⓜ Boston; Columbia University College of Physicians and Surgeons, New York City, 1921; member of the American Psychiatric Association and the Association for Research in Nervous and Mental Disease; formerly on the faculty of Tufts College Medical School; in 1937 appointed assistant psychiatrist of the Judge Baker Guidance Center in Boston; veteran of World War II; formerly clinical director at Blytheville in Greenwich, Conn.; died in the Peter Bent Brigham Hospital, Boston, July 23, aged 62, of pulmonary embolism.

Gilbert, Edwin Carpenter, Longmeadow, Mass.; Yale University School of Medicine, New Haven, Conn., 1906; veteran of World War I; for many years trustee of the Belchertown (Mass.) State School; formerly practiced in Springfield, where he served on the staff of the Springfield Hospital, and past-president of the Chamber of Commerce and Rotary Club; died in the Brattleboro Retreat, Brattleboro, Vt., Aug. 23, aged 76, of bronchopneumonia and cerebral arteriosclerosis.

Gilmer, Roy Jones, New Haven, Conn.; Meharry Medical College, Nashville, Tenn., 1942; veteran of World War II; physician for the local welfare department; on the staffs of the Grace-New Haven Community Hospital and the Hospital of Raphael, where he died Aug. 30, aged 42, of coronary thrombosis.

Girvin, Richard Bates Ⓜ Minneapolis; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1908; member of the Aero Medical Association; veteran of World War I; in 1940 appointed medical examiner for the Civil Aeronautics Authority; on the staffs of St. Barnabas and St. Andrews hospitals; died in the Barnes Hospital, St. Louis, Aug. 7, aged 74, of emphysema.

Gregg, Ulysses Sherman, Kalamazoo, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; served on the staff of the Kalamazoo State Hospital; honorary member of the medical staff, Bronson Methodist Hospital, where he died Aug. 27, aged 78, of cerebral thrombosis.

Hardie, Julian Carter, Salt Lake City; University of Pennsylvania School of Medicine, Philadelphia, 1911; retired in 1947 as county physician; physician and surgeon for the Utah Copper Company and U. S. Fuel Company in Garfield and Hiawatha, Utah; died Aug. 17, aged 83, of bronchopneumonia.

Haynsworth, Custis Hall Ⓜ Greenville, S. C.; Medical College of South Carolina, Charleston, 1941; interned at the Central Dispensary and Emergency Hospital in Washington, D. C.; served a residency at the Shriners Hospital for Crippled Children in Greenville, Roper Hospital in Charleston, and the Hospital for Special Surgery in New York City; chief of orthopedic service at the Greenville General Hospital; died Aug. 15, aged 43.

Helland, John William Ⓜ Spring Grove, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; died in La Crosse (Wis.) Lutheran Hospital Aug. 28, aged 80.

Hochwald, Adolf, Ray Brook, N. Y.; born in Tesin, Czechoslovakia, Sept. 5, 1906; Masarykova Universita Fakulta Lekarska, Brno, Czechoslovakia, 1930; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists, Medical Society of the State of New York, American Association for the Advancement of Science, and the Cleveland Society of Pathologists; fellow of the College of American Pathologists; instructor in pathology at the Woman's Medical College of Pennsylvania in Philadelphia, 1943-1944; senior instructor in pathology at Western Reserve University School of Medicine in Cleveland, from 1948 to 1951; served as assistant professor of pathology at the New York University College of Medicine; formerly on the staffs of the Mount Sinai Hospital in Cleveland and University Hospital (New York University–Bellevue Medical Center) in New York City; since 1954 associate pathologist at the Ray Brook State Tuberculosis Hospital, where he died Aug. 31, aged 51, of myocardial infarction and essential hypertension.

Johnson, Jesse Brealand Ⓜ Galveston, Texas; University of Texas School of Medicine, Galveston, 1913; professor of radiology at his alma mater; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology; past-president of the Texas Radiological Society, and the Galveston County Medical Society; served on the staff of the John Sealy Hospital; died Aug. 18, aged 68, of cancer of the larynx.

Johnson, John Franklin Ⓜ Chattanooga, Tenn.; Vanderbilt University School of Medicine, Nashville, 1919; member of the American Academy of General Practice; past-president of the General Practitioners of Chattanooga; died Aug. 31, aged 66.

Joyce, Francis William Ⓜ Pittsburgh; George Washington University School of Medicine, Washington, D. C., 1918; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; president of the medical staff and chief pathologist, St. John's Hospital, where he was a member of the staff for many years; died Aug. 21, aged 67, of coronary occlusion.

Kaplan, Isador, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1922; died Aug. 31, aged 65.

Klein, Sidney Ⓜ New York City; Columbia University College of Physicians and Surgeons, New York City, 1919; assistant clinical professor of psychiatry at New York University College of Medicine and New York University Post-Graduate Medical School; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychoanalytic Association and the American Psychiatric Association; associated with Hillside Hospital in Glenn Oaks, University Hospital (New York University-Bellevue Medical Center); died July 29, aged 62, of coronary thrombosis.

Kyle, Bernard Hewitt Ⓢ Lynchburg, Va.; born in Buffalo Springs, April 17, 1887; Medical College of Virginia, Richmond, 1911; member of the American Academy of Orthopaedic Surgeons; specialist certified by the American Board of Orthopaedic Surgery; past-president of the Lynchburg Academy of Medicine; veteran of World War I and received commendations from this country and its Allies; a member of the Procurement and Assignment Service for Physicians in World War II and for two years was on the Military Induction Board in Roanoke; designated examiner for the U. S. Employees' Compensation Commission; associated with Marshall Lodge Memorial Hospital, Virginia Baptist Hospital, and Lynchburg General Hospital; orthopedic surgeon for the Norfolk and Western Railway; died Aug. 22, aged 71.

Lacy, Justin Ernest, Knoxville, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; an associate member of the American Medical Association; served on the staffs of the Veterans Administration hospitals in various cities; veteran of World War I; died in Washington, D. C., Aug. 28, aged 79, of cancer of the mouth.

McCartney, James Shearer Ⓢ Minneapolis; born in Tarentum, Pa., July 21, 1893; Johns Hopkins University School of Medicine, Philadelphia, 1917; professor of pathology at the University of Minnesota Medical School and the University of Minnesota Graduate School; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists and the College of American Pathologists; veteran of World War I; served as president of the state board of medical examiners in the basic sciences; consultant in pathology at Abbott Hospital, Asbury Hospital, and the Northwestern Hospital, where he died Aug. 30, aged 65, of cerebral hemorrhage.

McLeod, Alexander Ⓢ Glenallen, Va.; Baltimore Medical College, 1913; veteran of World War I; died in Richmond Sept. 2, aged 67, of cancer.

Mammen, Goeke Henry Ⓢ Chicago; Rush Medical College, Chicago, 1894; fellow the American College of Surgeons; associated with the Lutheran Deaconess Hospital, where he died Aug. 30, aged 86, of uremia and arteriosclerosis.

Mason, Virgil Andrew Ⓢ East Orange, N. J.; Cornell University Medical College, New York City, 1933; certified by the National Board of Medical Examiners; fellow of the American College of Surgeons; associated with the Orange Memorial Hospital, where he died Aug. 21, aged 52, of bronchiogenic cancer with metastases.

Mechling, George Seanor Ⓢ Jackson, La.; born in Newkirk, Okla., Dec. 10, 1905; University of Oklahoma School of Medicine, Oklahoma City, 1932; formerly on the faculty of his alma mater; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; formerly associated with the Central State Griffin Memorial Hospital and Norman Municipal Hospital in Norman, Okla.; served on the staff of the University Hospitals in Oklahoma City; on the staff of the East Louisiana State Hospital; died in the Ochsner Foundation Hospital, New Orleans, Aug. 22, aged 52, of cirrhosis of the liver.

Merrill, Ralph Edward Ⓢ Glendale, Calif.; Harvard Medical School, Boston, 1920; member of the American Academy of General Practice; on the staffs of St. Joseph's Hospital in Burbank, Glendale Hospital and Sanitarium, Glendale Memorial Hospital, and Behrens Memorial Hospital; died in the Glendale Hospital and Sanitarium Sept. 2, aged 63.

Morris, Hurston H., Portsmouth, Ohio; Marquette University School of Medicine, Milwaukee, 1926; died Aug. 26, aged 62.

Munch, Louise Lucy Ⓢ Chicago; Northwestern University Woman's Medical School, Chicago, 1901; died in St. George Hospital Sept. 4, aged 91, of chronic myocarditis and arteriosclerosis.

Munoz, Roque Narciso Alfonzo Ⓢ Chicago; Chicago Medical School, 1921; veteran of World War I; died in St. Anne's Hospital Sept. 9, aged 65, of acute coronary insufficiency with myocardial infarction.

Murphy, Simon William, Kenosha, Wis.; the Hahnemann Medical College and Hospital, Chicago, 1909; veteran of World War I; died in St. Catherine's Hospital Aug. 31, aged 79.

Myer, Edward Herman, Mahwah, N. J.; Maryland Medical College, Baltimore, 1910; Baltimore Medical College, 1912; died Aug. 22, aged 70.

Osorio, Vasco Eric Monteiro Ⓢ Piedmont, Calif.; University of Louisville (Ky.) Medical Department, 1916; fellow of the American College of Surgeons; veteran of World War I; served with the Army of Occupation in 1919; formerly associated with Queen's, Children's, St. Francis, and Kapiolani hospitals in Honolulu, Hawaii; died Aug. 29, aged 71, of pulmonary embolism.

Pellegrini, Pietro, New York City; Regia Università deglia Studi di Parma. Facolta di Medicina e Chirurgia, Italy, 1896; an associate member of the American Medical Association; associated with Columbus and Italian hospitals and the City Department of Correction; died in Miami, Fla., Aug. 22, aged 87, of acute bronchitis and arteriosclerotic heart disease.

Potter, Marjory Janette Macpherson, La Mesa, Calif.; University of Buffalo School of Medicine, 1897; an associate member of the American Medical Association; died Aug. 16, aged 87, of coronary infarction and cerebral hemorrhage.

FOREIGN LETTERS

BRAZIL

Giardiasis.—Giardiasis is commonly treated with quinacrine, but often this drug produces undesirable side-effects. Rodrigues and Rocha e Silva (*Jornal de Pediatria,* vol. 23, July, 1958) treated 40 children who had this disease with chlorquinaldol. They gave 20 mg. per kilogram of body weight daily for 10 days. If the stools remained positive, they gave a second course using double this dosage. The feces were examined 10 and 20 days after the drug was discontinued. Negative stools were obtained in 29 or 72.5%. There was no intolerance of the drug, even with the larger dose. The authors concluded that the drug should be tried in those patients who showed an intolerance to quinacrine, which cures 90 to 98%.

Biliary Cancer.—Dr. Fernando Paulino and coworkers observed 28 patients (20 women and 8 men) with primary cancer of the biliary tract in the Casa de Saude São Miguel, Rio de Janeiro. The oldest patient was 74 and the youngest 32 (average 54). The tumor was localized in the gallbladder in 18, in the common bile duct in 6, and in Vater's ampulla in 4. Gallstones were found in 18. Microscopy revealed 25 adenocarcinomas, 1 squamous cell carcinoma, 1 scirrhous carcinoma, and 1 adenoacanthoma. Patients who had had gallstones for many years frequently noticed that the character of the pain changed from typical biliary colic to a constant pain in the right upper abdominal quadrant. According to the authors, this was due to neoplastic invasion of the nerves of the hepatic hilus. The results of surgical treatment were disappointing when the tumor was localized in the gallbladder and common duct. In four tumors of Vater's ampulla, duodenopancreatectomy was performed, twice with hope of cure (one patient was still alive two and one-half years after the operation, and the other died with metastases one year and 10 months after operation). Local excision of the ampulla was made in two patients over 70 years old; one was relieved of symptoms for two years. The authors recommend that in all patients with cancer of the biliary tract resection be attempted.

COLOMBIA

First Graduates of New Medical School.—In July the medical school of the Universidad del Valle at Cali held its first graduation. The school, opened in October, 1951, with 60 first-year students as an experiment in medical education, has had a short but important influence on the development of teaching, especially in basic sciences. The new school has been aided by the Kellogg Foundation which financed training in the United States for 13 members of its faculty and gave funds for the biochemical and pathological laboratories. Equipment for the public health and preventive medicine department and the library and training expenses for eight other faculty members were provided by the Rockefeller Foundation. From 1956 a Tulane-Colombia Medical Education Program has functioned under the guidance of Dr. E. C. Faust. The principal objectives of this program in Colombia are (1) cooperation in the planning and revision of the medical courses in undergraduate instruction, including the premedical and clinical years of study, so that future graduates of medical schools will have better training for the practice of medicine, (2) discovery of promising young men interested in teaching medical subjects and recommendation for their graduate training in Tulane University and other institutions, and (3) stimulation of medical research. To implement this program, in addition to a field coordinator, three or four specialists are sent each year from Tulane to work with the seven medical schools of Colombia for periods of three months. Another important contribution of the Valle medical school to the improvement of medical practice in Colombia was the organization of the first seminar on medical education in 1955.

Medical Education.—At the request of Dr. Eduardo Cortés-Mendoza, Dean of the medical school of the National University; Dr. Vernon B. Link, Chief of the Health, Welfare, and Housing Division, United States Operations Mission to Colombia; and Dr. E. C. Faust, a four weeks visit to the Medical school at Bogotá was made by Dr. B. G. Horning in July. His report emphasized organization and administration rather than teaching methods and techniques. The most important suggestions were that (1) the medical school be reorganized into 10 major departments, each representing a broad area of medical education, and that the chairman of each be given a full-time contract, (2) the Hospital San Juan de Dios be reorganized, each department rep-

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The items in these letters are contributed by regular correspondents in the various foreign countries.

resenting a broad area of medical education, (3) membership of the school council include the dean, the chairmen of the major departments, and two or more members elected to represent the faculty at large, (4) the deanship be made a full-time position with an adequate salary and secure tenure of office, (5) the dean and council make a more extensive and effective use of committees in the administration of the school, (6) the contest method in the selection and promotion of faculty staff members be discontinued, (7) the preliminary selection of teachers be made by a special committee appointed by the dean with the approval of the council searching the entire nation for the most suitable candidates, (8) the positions of professor and assistant professor be considered permanent until retirement, provided the holders continue to demonstrate growth and ability in their field, (9) the school continue to send brilliant young faculty members abroad for graduate study, especially in basic sciences, and older faculty members for short periods of orientation, (10) each department develop a nucleus of qualified staff members, including the chairmen, (11) adequate salaries be provided for the full-time staff members, (12) the government and the university increase the budget of the medical school, (13) the Junta de Beneficencia hire a well-trained hospital administrator to supervise all of the hospitals administered by it, (14) the Beneficencia de Cundinamarca provide more material help to medical education through the hospitals which it owns, (15) the chief librarian with the help of the library committee develop a plan for assisting medical students to purchase text books, (16) the curriculum be reorganized so that one year would be devoted to premedical studies, five years to medical education, and one year to a supervised internship, (17) "blocks of time" of several hours duration on successive days be allocated to certain of the preclinical subjects so that they may be completed in a shorter period of time, (18) the "block system" featuring the clinical clerkship and bedside teaching be adopted by the clinical departments as soon as possible, (19) less emphasis be placed on lectures and more on group teaching and laboratory work in the preclinical fields and on bedside teaching and the use of the library in the clinical fields, (20) the major emphasis of the curriculum be to provide students with the knowledge and skills necessary for private practice and first level public health positions and as a basis for specialization, (21) preventive medicine and public health be integrated with the curriculum as a whole and the curriculum committee study the amount of time allocated to each basic medical science subject in relation to its importance, (22) a strong department and section of preventive medicine and public health be developed, with adequate staff and facilities, including a modern health center, and a well-developed field area be provided, and (23) graduate medical education programs be developed in the basic sciences and in the clinical fields continuing opportunities for medical education be provided for practicing physicians.

INDIA

Corticosteroids in Tuberculous Meningitis.—K. J. Vyas (*Indian Practitioner* 11:8 [Aug.] 1958) treated 42 children who had tuberculous meningitis with corticosteroids. Their ages ranged from less than 6 months to just over 5 years. They got 5 mg. of prednisolone by mouth, q.i.d., for one week, followed by 5 mg., b.i.d., for one week, and then 2.5 mg., b.i.d., for another week. In severely ill and moribund patients treatment was initiated by giving cortisone intramuscularly for two to four days followed by prednisolone by mouth. All received simultaneously 0.5 Gm. of streptomycin and 150 mg. of isoniazid daily, irrespective of age and weight, for two months. These doses were later reduced for very young children. Streptomycin therapy was continued for another two months on alternate days and then every fourth day for a further period of two months. Isoniazid therapy was continued for one year.

On this treatment 30 were cured, 8 died, 1 was relieved, and 3 were unrelieved. Of the eight that died, one was 6 months of age, five were between 1 and 2 years old, and two were 4 years old. All but one was admitted in an unconscious or moribund condition. The patient classified as relieved was discharged after two months in the hospital and was much better clinically, conscious, and without neurological defects. Early diagnosis and early institution of treatment are important, but the younger the patient, the worse the prognosis. The results with the use of the hormone were dramatic, some children regaining consciousness in a few days. Most became afebrile promptly and remained so even after discontinuation of the hormone therapy. In a previous series of patients with tuberculous meningitis on whom corticosteroids were not used, 50% died. Thus, the use of corticosteroids definitely improved the prognosis of these patients.

Tropical Eosinophilia.—K. V. Rac treated 40 patients who had tropical eosinophilia with diethyl carbamazine (*Antiseptic* 55:8 [Aug.] 1958). The age of these patients ranged from 4 to 57 years, most of them being in the second, third, and fourth decade. The daily dosage of the drug was 10 to 12.5 mg. per kilogram of body weight and was administered in three divided doses for 10 days. In children treatment had to be continued for about 15 days to get the same result as in adults. Symptomatic relief was noticed in all but two patients within two days of starting the treatment.

The eosinophil count showed an almost immediate drop, while the lungs were clear of moist or dry rales as early as the third day. No serious toxic effects were met with, only seven complaining of such side-effects as general weakness, giddiness, diarrhea, and rash. The results on the whole were good in 31. In eight recurrence of asthmatic attacks occurred, and in five there was a concomitant rise in the eosinophil count. In three, although the eosinophil count had come down to normal, the symptoms persisted. Roentgenograms of the chest of some were made, and the lungs were seen to have cleared at the end of treatment, when the eosinophil count had also reached normal levels. The most striking features in therapy with this drug were the precipitous fall in eosinophil count immediately after treatment and early symptomatic relief with almost simultaneous clearance of lung signs. Arsenic used in the treatment of tropical eosinophilia also leads to an immediate fall in the eosinophil count, but the symptomatic relief is neither so marked nor so prompt.

Intussusception.—W. Singh and co-workers reported a series of six patients with tumors of the intestine causing intussusception (*Indian J. Surg.* 20:3 [June] 1958). Benign tumors of the intestine are uncommon and are rarely diagnosed clinically. Intussusception is the most common type of obstruction caused by such tumors. Three of these tumors were hemangiomas and three were fibromas. Two of the hemangiomas were in the small intestine, and the third was in the cecum. One was a single polypoid cavernous hemangioma, and the others were capillary hemangiomas of the small intestine and cecum. The remaining three were fibromas of the small intestine—one with myxomatous degeneration and another with a hyaline change. Five of the six were intraluminal. Three patients had a history of subacute obstruction going on to acute obstruction. The other three had signs and symptoms of acute intestinal obstruction of short duration. A history of previous pain and constipation lasting two months to six years was present in the three with fibroma, one of whom had pigmentation of the skin and subcutaneous neurofibromas. On exploration, intussusception of the ileoileal type was found in four and of the ileocolic type in two. Roentgenograms of four showed dilated coils of small intestine in one and a filling defect or complete obstruction in the others. The appearance was suggestive of intussusception in only two. The authors emphasized the importance of keeping in mind the possibility of finding a benign neoplasm of the small intestine in patients with obstruction, that intussusception is not so uncommon in adults as is usually believed, and that most of the times it is due to a benign tumor.

Pleurisy with Effusion.—P. N. Laha (*J. Indian M. A.* 31:5 [Sept. 1] 1958) studied a series of 25 patients who had pleurisy with effusion on one side to determine the intrapleural pressure changes on the affected side. The site chosen for measuring the intrapleural pressure was the second intercostal space of the affected side along the midclavicular line, which was above the level of the fluid in all but three patients. On the basis of the findings the patients were divided into five groups. The first included seven whose intrapleural pressure was within the normal range during inspiration and expiration and with regard to mean pressure. This was the first stage of effusion from the point of view of intrapleural pressure. The second group included five whose pressure could be recorded only during inspiration but was within the normal range. If the disease did not stop or improve at this second stage, the third stage set in with further effusion. The normal intrapleural pressure in this stage was modified in such a way as to maintain a negative intrapleural pressure during inspiration but produced a positive pressure during expiration and a mean intrapleural pressure of 0 cm. of water.

The fourth group included three patients in whom the effusion covered the entire pleural cavity. The intrapleural pressure could be recorded only during inspiration and was gradually becoming increasingly positive. The pressure reading during the phase of inspiration was not the correct measure of intrapleural pressure which could not be recorded due to lack of free pleural space. The fifth group included five patients in whom, in spite of the presence of free fluid in the pleural cavity, the intrapleural pressure could not be recorded in either phase of respiration due to obliteration of the pleural cavity above the level of the fluid. The duration of illness, level of the fluid in the pleural cavity, the position of the trachea, and the apex beat did not seem to be correlated with the findings of intrapleural pressure. The factor governing the changes in intrapleural pressure was the amount of fluid collected in the pleural cavity and the consequent collapse of the lung due to its elasticity. A measure of the elasticity of the lung of the affected side was reflected in the intrapleural pressure.

JAPAN

Gumma Fever.—In Gumma Prefecture where a recent typhoon caused severe damage, 1,000 persons were laid low with what appeared to be a new virus infection. The victims were stricken with fever of about 100 F (38 C), acute pharyngitis and conjunctivitis, and diarrhea. Children were first to fall sick, but the disease spread to adults later. The preventive measures advocated include ventilation of dwellings, especially sleeping quarters, and avoidance of gatherings. In Tokyo and Kyoto large numbers of school children are sick with symptoms strikingly similar to those of Gumma fever. Some health authorities believe this might be a new type of influenza.

Dental Caries.—Along with the census taking of a year ago government dentists made a dental survey of representative populations numbering 30,878 men, women, and children of all classes from various geographical areas and found that 85% of those examined had dental caries. Many were badly in need of dentures. Women with caries outnumbered men by 2%. The incidence in infants and preschool children was high: 17% in one-year-olds; 57% in 2-year-olds; and 80% in 3-year-olds. Among the adults, those requiring major and minor dental treatment exceeded 44%.

SWEDEN

Diagnosis of Silicosis.—Dr. L. Norviit (*Svenska läkartidningen,* July 25, 1958) examined scalene lymph nodes obtained by biopsy from 21 miners whose work might have provoked silicosis. All had been working for many years in an atmosphere of stone dust, and all but one showed radiologically demonstrable changes in the lungs. Before the biopsy, silicosis alone had been diagnosed in eight, silicosis plus tuberculosis in nine, sarcoidosis in one, sarcoidosis plus tuberculosis in one, tuberculosis alone in one, and nothing pathological in one. The biopsy revealed nothing abnormal in eight, sarcoidosis in one, silicosis alone in six, silicosis plus tuberculosis in four, and tuberculosis alone in two. Though biopsy is useful in demonstrating morbid changes in deep-seated lymph glands connected with the lungs, negative findings do not necessarily rule out silicosis.

Guinea Pig Versus Culture Tests for Tubercle Bacilli.—Dr. P. N. Oscarsson, (*Nordisk medicin,* Aug. 21, 1958) studied 3,728 tests carried out between 1950 and 1956 with a view to comparing the effectiveness of the guinea pig inoculation and culture tests for tubercle bacilli. He found that the former gave fewer positive results, the difference being statistically significant with respect to both sputum and gastric washing. With other material such as urine and exudates, the figures were too small to justify any conclusion. The divergencies between the two were most noticeable when only a few bacilli were demonstrable. It must be admitted that neither direct microscopy nor the culture test throws light on the pathogenicity of the germs found, so they may fail to distinguish between tubercle bacilli and nonpathogenic mycobacteria. Oscarsson concluded that the guinea pig test may prove of value as a supplement to culture in certain cases, but for routine examinations the culture test comes first.

Induced Abortions.—With the revision of Sweden's abortion law in 1946 there has been a rising tide of legally induced abortions. In 1951 there were 57 legal abortions per 1,000 live births. Dr. Per Arén studied the events of the past decade insofar as they threw light on what happened to the women involved (*Acta obstetrica et gynecologica scandinavica,* Supplement, 1958). The report deals with the records of 248 women who underwent legal abortion and subsequently again became pregnant, accounting for a total of 389 pregnancies; 100 women who had undergone a legally induced abortion and had subsequently achieved a pregnancy which went to term were selected at random and interviewed. Eighty-four said that, had legal abortion been refused them, they would have let their pregnancies go to term. In none had the subsequent pregnancy and confinement resulted in any threat to their health or working capacity. Another 197 women for whom the legal induction of abortion had been authorized but, for some reason or other, not actually accomplished were interviewed. Subsequent events showed that in 89% the failure to exploit the permission for an induced abortion was fortunate. The author urges a critical revision of the attitude of the community to the interruption of pregnancy on social indications.

Cortisone Treatment of Rheumatism.—The Swedish Ministry of Pensions sends many of its rheumatic patients to a hospital where about 1,400, chiefly suffering from rheumatoid arthritis, were treated in 1956 and 1957. Among them were 323 who had been treated with various forms of cortisone during periods ranging from a few weeks to four years before admission to this hospital. These patients were the subject of a statistical analysis by Dr. F. Bohman (*Nordisk medicin,* Sept. 18, 1958). In 132 there was improvement under cortisone therapy, with a relapse as soon as it was discontinued. In 88 no effect from the drug was observed. In 39 the disease became worse with use of it. In most of these cases cortisone had been given for a prolonged period, with improvement at first followed by aggravation of the symptoms in spite of continuation of the drug. In 41 there had been improvement which was maintained for weeks or months after it was discontinued. In the remaining 23 there was improvement under therapy with cortisone, the administration of which was continued on admission to hospital.

Bohman classified these 323 patients according to the side-effects or complications of cortisone treatment. Of the 91 who showed some side-effects, 39 had psychic disturbances which usually took the form of depression or anxiety. In some apathy and lassitude were the most prominent symptoms. Aggressiveness and dysphoria were also noted. The edema observed in 40 was, in 23, confined to the lower extremities, chiefly below the knee on both sides. In nine the edema was confined to the face and in eight to both face and legs. Dyspeptic symptoms suggestive of gastritis or peptic ulcer were observed in 23. In eight of these there was radiologic evidence of peptic ulcer. The thrombopenia observed in 12 was never severe, the lowest figures ranging from 149,000 to 193,000. Though there might be some doubt as to a causal relationship between the thrombopenia and the cortisone, no other possible cause of the former could be found in these 12 patients.

Staphylococcic Enteritis and Antibiotics.—Dr. T. Wiklund (*Nordisk medicin*, Sept. 18, 1958) illustrated a discussion of serious staphylococcic infections following the use of broad-spectrum antibiotics with the following case report. A candidate for appendectomy was not operated on because of bronchitis, expectant treatment being adopted with the administration of a total of 3 Gm. of oxytetracycline. On the fourth day of this medication abdominal pain and diarrhea set in, proving refractory to treatment and terminating in death four days later. Cultures confirmed the diagnosis of staphylococcic enteritis, and autopsy revealed a pseudomembranous esophagogastroenteritis. In another patient in whom the lungs had been operated on preoperative and postoperative treatment with penicillin and streptomycin was followed by intractable, fatal enteritis. In a third patient who also died of enteritis, streptomycin had been given by mouth in an attempt to sterilize the digestive tract as a preliminary to a colonic resection. In most such fatal cases of staphylococcic enteritis the blame was put on the broad-spectrum antibiotics given by mouth, but this mishap may also follow the parenteral administration of combined penicillin and streptomycin. The clinical findings are well defined, with abdominal discomfort and diarrhea setting in three to five days after the institution of antibiotic treatment.

UNITED KINGDOM

Homes for the Aged.—It is estimated that by 1977 there will be nearly 500,000 people aged over 75 in Britain. In the last 10 years the number increased by 25% and is now 281,000. The Minister of Health believes that the best place for old people is their own homes. The provision of as many one-bedroom units as possible is needed. Since 1952 the proportion of this type of house increased from 7.5 to 13.5%. The minister has opened a $200,000 home, the first to be built in South Wales specifically for old people. It will accommodate 50 people who will pay between $5.60 and $14 a week for room and board.

Lord Amulree, writing in *Public Health* said few local authorities have interpreted their powers under the National Health Service Act to provide a domiciliary meal service differing from the meals-on-wheels service offered by many voluntary organizations. These are mostly for healthy pensioners. It should be possible, on a medical certificate, for sick or disabled persons to have meals delivered at least five days a week. Many more elderly persons could then be discharged from hospitals.

Lung Cancer Death Rates.—E. C. Hammond, in the *British Medical Journal* for Sept. 13, said that in 1955 the lung cancer death rate reported in England and Wales for men was 2.1 times as high as that reported in the United States and for women 1.6 times as high. A difference of this order of magnitude has existed in male rates for several decades, while prior to 1949 there was only a small difference in the female rates. Among both sexes in the middle-age and old-age groups there are proportionately more cigarette smokers in the United Kingdom than in the United States. On the other hand, at present, the number of cigarettes consumed per smoker per day is higher in the United States than in the United Kingdom. The proportion of male cigarette smokers who inhale appears to be about the same in the two countries. In the United States the average length of the remaining butt after a cigarette is discarded is about 31 mm.; about 5% are 45 mm. or longer, and about 9% are under 20 mm. in length. In the United States in 1957 the main stream smoke of the average cigarette contained about 2.6 mg. of nicotine and 42.8 mg. of tar. More recently, cigarettes with a relatively low content of nicotine and tar have become increasingly popular in the United States.

Current data do not support the hypothesis that a substantial proportion of the difference in lung cancer death rates between the two countries is attributable to differences in the use of cigarettes, but more detailed information on smoking habits and on the chemical composition of cigarette smoke in the two countries is needed before this can be definitely established. In both countries the death rate from lung cancer in smokers as well as nonsmokers is higher in urban than in rural areas. The difference in this respect is far greater between Liverpool and rural areas of Wales than between large cities and rural areas in the United States, but Merseyside (which includes Liverpool) has a higher death rate from lung cancer in men than any other region in England and Wales, so it cannot be considered as typical of the country as a whole. While it is possible that some of the difference in death rates from lung cancer may be due to such factors associated with urbanization as air pollution or occupational exposures, available evidence does not suggest that these factors can account for a large part of the difference. The reported death rate from cancer, exclusive of lung cancer, declined steadily from 1931 to 1956 in England and Wales but rose slightly in the United States during the same period. Differences in the diagnosis and recording of causes of death may account for a part of the difference between death rates from lung cancer in the two countries.

Health Levy.—A significant pointer to progressive Conservative thought on the National Health Service by Sir Keith Joseph, M.P. for Leeds North-East and joint secretary of the party's Health and Social Security Committees, was reported in the *Daily Telegraph* of Sept. 19. He suggested that there may one day be two levels of Health Service contributions, according to earnings. There will always be a ceiling to the amount that can be spent from taxation. Expenditure above this will have to be financed partly by contributions and partly by charges. As the service grows and improves there may be elements in it that can be charged to patients without discouraging early treatment or unduly burdening the ill. Such charges should be subject to a means test so that those least able to afford payment are exempt. Contributions, too, can grow as average earnings grow, and perhaps there may one day be two levels of contributions: a lower one for those in a lower bracket of earnings and a higher for those above. A graduated contribution, varying with earnings, would have to take personal circumstances into account and would quickly become a second tax system. It would be inexcusable if the government failed to provide essential health services simply because in their view no more cost should be borne by taxation.

The challenge of the next decade is that the Health Service must find some of its own needs by switching some of its present resources and using them even more effectively. Savings and improved value for money expended could be made in the cost of drugs, managerial efficiency, design of hospitals, and improved coordination between hospital, local authority, and voluntary services. So far as drugs are concerned, the greatest saving could be made by reducing the number of prescriptions or the taxborne cost of each one by, for instance, doubling the present charge per item. The time is coming, according to Sir Keith, for new bargain between the community and the general practitioner, a bargain in which the state, by some means, frees the practitioner from the economic incentive to maximize the number of his patients, regardless of the actual constructive treatment he is able or willing to give them. This would be a situation in which the good general practitioner could again earn more than his inferior colleague even though both look after the same number of patients of the same financial status. Some such bargain should emerge, but it will not cost less than now. It will cost more, at least in the short term, though long-term economies by better therapy and better service may emerge. Private practice should be encouraged and more physicians should depend for part of their living on it.

Asian Influenza.—An editorial in the *British Medical Journal* for Sept. 20 stated that past experience has shown that with the appearance of antigenically novel strains of influenza virus earlier ones disappear. Isolations of A virus strains since the Asian strain appeared in 1957 have been almost entirely of this new type. We may therefore expect that viruses closely related to the Asian will dominate the scene for perhaps a decade. In any case the attack of influenza is usually much the same from the patient's point of view. Many physicians will be asked about vaccination. Last year's experience showed that a vaccine made against the current strain and given in time generally diminished incidence by about 67%. The chances of catching influenza are presumably less than they were last winter. It is therefore a matter for personal choice rather than for a country-wide campaign whether, this coming winter, it is worthwhile to get protection from a disease that may not turn up.

WORLD HEALTH ORGANIZATION

Use of Oxygen-15 in Study of Pulmonary Malfunction.—At the Second United Nations International Conference on the Peaceful Uses of Atomic Energy, N. A. Dyson and co-workers (London) stated that the short-lived radioactive isotope, oxygen-15, potentially offers a safe and direct tracer method of studying both the intake of oxygen on inspiration and its clearance by the blood, in small regional volumes of lung. Hitherto, bronchospirometry has been almost the only method of comparing gas exchange in different regions of the lungs, but, since it entails the passing of catheters into the bronchi under local anesthesia so that the gas can be collected it is unpleasant for the patient and the conditions are hardly physiological. Moreover, only a comparison of the whole of one lung with the other is usually practicable. Thus, the use of oxygen-15 marks an important advance. Oxygen-15 is the longest-lived radioactive isotope of oxygen, yet it has a half-life of only two minutes. This short half-life means that a number of tests can be done serially with no residual activity, but it also means that the isotope must be prepared close to the patient. In common with many cyclotron-produced isotopes, oxygen-15 decays by positron emission, and consequently the annihilation gamma radiation from the lungs may be measured by external scintillation counters. By using pairs of counters connected in coincidence, the volumes examined may be restricted to small cylindrical cores through the lungs.

The results in normal subjects and in patients chosen to represent examples of extreme abnormality of ventilation and blood flow in the lungs were generally as expected. They showed that it is possible to measure the ventilation and clearance by the blood of small volumes of lung with useful accuracy. The ability to discriminate between small areas of lung was good, but the problem of examining a small, localized volume inside the lung (e. g., a cyst) was difficult because normal lung tissue was inevitably included in the field. The chief drawback of the technique as it stands is the poor repeatability of the measurements of clearance rate, and for these it may be necessary to explore parallel counting further with some sacrifice of spatial resolution in order to achieve higher counting rates. The radiation hazard associated with this test, using either parallel or coincidence counting, is acceptable.

Applications of Iodine-132.—At the same meeting K. E. Halnan and E. Eric Pochin (London) stated that iodine-131 has been widely used in the study of thyroid function and is of outstanding value for many clinical investigations. In two important respects, however, an iodine isotope with a much shorter half life, such as iodine-132, offers advantages. The greatest advantage in the use of I^{132} lies in the much smaller radiation doses delivered to the thyroid per microcurie administered, a given oral dose of I^{132} delivering from 1/40 to 1/100 the thyroid radiation received from an equal amount of I^{131}. This reduction in dosage is due not only to the short half-life of I^{132} (2.3 hours or less than 1/80 that of I^{131}) but also to the relatively slow course of radioiodine uptake into the gland from the circulation. In a normal thyroid gland iodine uptake will be only half completed in about six hours, and by this time 85% of the administered I^{132}, but only 2% of I^{131}, will have undergone decay. Repeated measurements of thyroid function after administration of thyrotropic or thyroid hormone may be of value also in certain cases.

Day-to-day tests with I^{132} will readily demonstrate an effect of a single injection of thyrotropic hormone on the normal thyroid or on the thyroid of most patients with hypofunction of the pituitary, but no effect will be demonstrable in patients with primary hypothyroidism. In clinical use it will usually be sufficient to give an injection of thyrotropin immediately after the first I^{132} test and then to repeat the test at the same time a day later. When the diagnosis of thyrotoxicosis is in doubt, it may be valuable to administer thyroid hormone to the patient for one week and then to repeat the I^{132} test, since the normal fall in radioiodine uptake does not occur in the hyperfunctioning gland. It appears therefore that the short half life of I^{132} gives it two substantial advantages over I^{131} both in diagnostic and in research examination of human thyroid function: a reduced radiation dosage to the subject investigated and convenience when repeating tests at short intervals. We have not found its preparation from tellurium-132 to involve any difficulty or hazard sufficient to outweigh these advantages.

Pituitary Ablation by Means of Radioactive Seeds.—At the same meeting Frank Ellis and co-workers (Oxford) stated that they had treated 42 patients who had mammary cancer with widespread metastases by inserting seeds. The results were not impressive statistically, but it must be remembered that all the patients treated had reached the stage when no more benefit could be expected by any other treatment, the possibilities of local irradiation, surgery, and hormone therapy having all been exhausted. Thus, any improvement in the patient's condition was sheer gain, and the considerations to be taken into account were chiefly the risk and discomfort of the operation and the risk and discomfort of complications. The risk of the procedure is small. No patient died as its immediate consequence. The discomfort immediately after the operation consisted chiefly of headache and slight nausea for two or three days and, less constantly, of diabetes insipidus. Of the 42 patients, 15 were improved. Three patients died in less than one week. All these had obvious liver metastases with jaundice and were recognized as deteriorating rapidly at the time of implantation.

Radioactive Gold in the Treatment of Ovarian Cancer.—At the same meeting J. H. Muller (Switzerland) stated that he had treated an unselected group of 51 patients who had ovarian cancer with radioactive colloidal gold (Au^{198}). All of the 10 patients in stage 1, 9 of the 13 in stage 2, 4 of the 10 in stage 3, and none of the 18 in stage 4 were alive and without symptoms after five years. These results indicate that such isotope administration is of definite value since it at least doubled the salvage rate of the ovarian cancer patients with surgically resectable primary tumors.

MISCELLANY

INTERNAL MEDICINE AND THE TRAINING OF INTERNISTS

Paul S. Rhoads, M.D.

Most of the readers of this journal, in rare moments of reflection and self-examination, must have pondered the questions: Of what does the practice of internal medicine consist? What is an internist? Since internists are supposed eventually to be certified by a specialty board, the implication is that they practice a specialized type of medicine. Doubtless, in some suitably remote repository the definition of this specialty lies entombed, but the fact remains that among both the public and physicians themselves there is much confusion as to what is embraced by this most all-inclusive of the specialties.

Some dictionaries sensibly ignore the question. A recent edition of Webster's unabridged dictionary defines internal medicine as, "That branch of medicine dealing with the diagnosis and treatment of diseases of the interior of the body," thus separating its practitioners from, at least, their dermatologic colleagues. "Dorland's Illustrated Medical Dictionary" takes a further step in describing it as "that department of medicine which deals with diseases that cannot be treated surgically," a novel segment of human ills delimited only by the imagination and industry of the surgeons. The same source goes a step further by defining an internist as "A physician who treats diseases of the internal organs," thus slicing off another segment. In Funk and Wagnalls large dictionary the only reference to internal medicine points out that this is a "remedy to be taken internally."

Such definitions obviously will not do. Yet, after several frustrating hours of search in one of America's best-equipped medical libraries, I was able to dig out no good statement of what is encompassed by the term. O. H. P. Pepper,[1] after a long preamble in which the difficulties of such an attempt were set forth, had a try at defining the practitioner of the specialty. "An internist is a physician fitted by sound and applicable knowledge of the basic sciences, a continuing training in internal medicine, a familiarity of fields outside his own, and an intellectual rather than a manual or technical approach, to study and treat the diseases of the field of internal medicine to which he strictly limits himself and to integrate with the knowledge of his own field that of the allied specialities." Dr. Pepper then modestly and truthfully admits that, since "internal medicine" eludes definition, this delineation of the internist is perhaps wide of the mark.

When asked to describe the tasks properly to be undertaken by an internist, I could not compose a definition but had this to say[2]:

> The average patient probably considers the internist a general practitioner particularly interested in diagnosis who has removed from his armamentarium the scalpel, trephine, forceps, plaster cast, and the countless other tools of his craft, confining his own therapeutic efforts to what can be written upon a prescription blank plus the hypodermic needle. This concept may be surprisingly close to the correct one. No specialist can approach in utility to the patient the general practitioner who by incessant study and necessity has mastered the staggering body of medical knowledge and the skills of a dozen surgical specialties required to make him competent to take care of nearly all the needs of those who come to him for help. However, this breed of doctor is almost extinct, for medical knowledge is too diverse and too technical for any one man to acquire all of its essentials.
>
> The "medical man" must strive to come nearest this ideal doctor more than any other of the specialists. It is he to whom the patient may properly turn as having the final word in determining what is the matter and what is to be done. The internist should not operate if a competent surgical colleague is available and usually could not anyway; but he must have enough knowledge of the problems of general surgery, gynecology, obstetrics, otolaryngology, ophthalmology, neurosurgery, genitourinary surgery, and all the other subspecialties so that he will know when surgery is indicated and whom he should call upon for help. Having called in another consultant and concurred in the diagnosis he must accept responsibility for the outcome along with his colleague.

In his delightful essay, "Internal Medicine as a Vocation,"[3] Sir William Osler, while regarding internal medicine as a field set apart, wisely refrains from defining it as a specialty. He says in part:

> I wish there were another term to designate the wide field of medical practice which remains after the separation of surgery, midwifery and gynecology. Not itself a specialty (though it embraces, at least, half a dozen) its cultivators cannot be called specialists, but bear without reproach the good old name physician, in contradistinction to general practitioners, surgeons, obstetricians and gynecologists.

He then goes on to point out his own high standards for those to be regarded as internists. Among his recommendations were a 10-year period of "dry bread years" in which were recommended study abroad or at least in other medical centers in this country, some years in general practice, much work with outpatients and without too much preoccupation with "quiz classes" and "journal work." He strongly advised more than passing familiarity with one or all of the disciplines of chemistry, physiology, and morbid anatomy. Of the three, some special knowledge of morbid anatomy was considered most essential for the clinician.

It is obvious that the composite of "internal medicine" cannot be neatly encompassed by a definition. There are just as obviously widely differing opinions as to the kind and amount of training required by those who wish to be internists. To some this dilemma may appear to be of purely academic importance. To others, who after five years of postgraduate preparation are about to take Board of Internal

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Editorial reproduced from A. M. A. Archives of Internal Medicine, October, 1958.

Medicine examinations, the question is practical and urgent. Upon their estimate of what, in the minds of the Board examiners, makes up the body of facts and skills which the internist should have for minimum equipment can depend success or failure in the Board examinations. Without going into the question of whether one who fails in the examination can or cannot be as effective an internist as one who passes, the fact is that unsuccessful candidates for Board certification are for the most part denied recognition as capable consultants. Admission to many hospital staffs and medical societies, advancement in academic rank in medical schools, and other privileges are denied to them. Members of the Board have from time to time deplored this practice of making differentials in emoluments and promotions contingent on Board certification, but the practice is here, and young internists know they had better get Board certification. One of the kindest and wisest of the Board chairmen gave the admonition that "the responsibility of acquiring knowledge rests with the candidate and the responsibility of maintaining the standards of knowledge required for certification rests with the Board."[4] In the long run, however, the future of internal medicine depends largely not upon what each person thinks should make him a good internist but what the Board collectively thinks.

Up to now, there has been little to criticize in either the personnel or the decisions of the Board of Internal Medicine. From the outset, thoughtful conscientious men have tried to lay down rules rigid enough to assure quality in the product of the training programs but flexible enough not to cramp the individual interests of the candidates in these all-important years of their development.

In 1940 Dr. Irons[5] quoted from the brochure of the Board:

> The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined—"A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology and pathology as they apply to disease is essential for continued professional growth of the individual who practices internal medicine. Such knowledge may be acquired in a number of ways. These include sciences closely integrated with clinical facilities, and service in well organized clinics or in preceptorships."

No one can question the desirability of such emphasis on the nonclinical disciplines or the wisdom of the declaration to keep the program very flexible, and yet time spent in a preceptorship part of the original program[6] is now unacceptable to the Board and for very understandable reasons.

There are differences of opinion as to what constitutes "sound knowledge" of the nonclinical subjects listed above. Some members question whether one year in one or more of these branches is enough—certainly there can be no prolonged special training in all of them. Others question the value of even a year of research experience as an integral part of the training of a resident. Lewis[7] feels that above all else an internist must have the capacity to make a thorough physical examination and to take a good history and make a penetrating analysis of it. In his view two years is too little time to develop in most of the candidates the broad knowledge of medicine and clinical skills that are required of internists. He thinks only those with more than average interest and aptitude for research should be required to participate in it. "If we are to do our job as I see we should do it, we will have to take an almost heretical course and decide that we will train some of our apt young men to become expert clinicians and clinical teachers and others to be investigators."

These points are well taken. The Board has made a real effort to make the program for qualification flexible enough to adapt itself to the special circumstances of physicians who have prepared themselves as specialists in internal medicine in a variety of ways. Plan H, the one most recently adopted, makes it possible for a man committed particularly to research and academic medicine to spend the two required postresidency years chiefly in the laboratory, provided he keeps his hand in clinical medicine by work in the hospital wards or dispensary once a week. Such men must be specially recommended for this privilege by the professors of medicine in the schools which they serve.

Whether other young internists not aiming for teaching careers but with strong research interests could not similarily benefit from two years with more emphasis on research and less on "practice" is a question that must be answered on an individual basis.

Dr. Irons, in his discussion of Board examinations points out that the written questions are so designed as to test the powers of the candidates to come to proper conclusions after certain clinical data are stated rather than to delve too deeply into their factual knowledge. In grading, more attention is given to logical deductions than to "right answers." Such emphases in evaluating the examinees are praiseworthy but difficult of attainment. Even more difficult, but much more important at this stage of a young man's development, is the evaluation of intangibles. In other words, what kind of a doctor should be encouraged to enter the field of internal medicine?

1. Is he impulsive or does he have the patience for long hours of continued study and for careful but monotonous tasks in the laboratory?
2. Does he have the conviction that *every* patient is important and worthy of his help whether he can pay for it or not?

3. Does he have sustained enthusiasm? Will he willingly undertake the painstaking preparation required to make him a good teacher?

4. Does he have enough devotion to his job to look up what he doesn't know, to make house calls, to get up at night when needed?

5. When called upon for a consultation will his efforts be devoted to helping his colleague to do what is best for the patient or to impressing the patient?

No one will deny the importance of such intangibles, yet how can an examining Board make such evaluation?

No Board can make rules which will answer all of these special problems of the peculiar division of medicine occupied by the internists, and yet a recognition of the problems suggests some changes that might help.

The present steps being taken by investigating committees from the College of Physicians to learn more about what makes up the residency program in the various approved hospitals should prove most constructive. If carried on perceptively it could furnish some indication of what the various internists in charge of residency programs consider important and of the way these ideas are implemented. More important, some evaluation of the teachers themselves could be had.

From an interchange between teachers in the various hospitals and the Board more minds could be brought to focus on the problem of arriving at some clearer definition of the minimum body of knowledge and skills which should reasonably be required of all internists. Perhaps an examination devised to test a candidate's grasp of the "fundamentals" so agreed upon could be given at the end of the three-year residency program. Successful candidates could then go about the next stage of their "dry bread" period pursuing their particular fields of interest in a more relaxed frame of mind.

Only those who have seen young men "sweat out" the year or two before their examination frantically reading textbooks and journals in the hope of cramming in enough facts in all the fields of internal medicine to satisfy the examiners can be aware of the anxiety produced in them. Few persons will question the value of high standards and the necessity of examinations to maintain them. However, could not these two or three years be spent more usefully if a candidate could be assured that the decision regarding his certification would be made on the basis of such points as the following?

1. Consideration of a comprehensive report on his performance by certified internists and faculty members of medical schools to whom the candidates had been assigned for guidance and supervision. From these reports would come information on the "intangibles."

2. Demonstration of the ability to take a good history, make a good physical examination, and make logical conclusions and recommendations after reviewing the laboratory data on one or two patients chosen at random.

3. Demonstration of a fairly good grasp of fundamental knowledge of internal medicine as a whole plus more complete knowledge in the field of his special interest, such as cardiology, metabolic diseases, or infectious diseases.

Implementing of Point 3 would require assignment of candidates to examiners, some of whom would have special interests in the same field as those of the candidate. In case of disagreement in evaluation by two examiners, a third should be called in before a candidate is failed. At this stage of a man's training the psychologic impact of failing is too devastating for the decision to be reached with any hint of haste or unfairness. If an unfavorable verdict is reached, and inevitably this will happen in many cases, the candidate should be entitled to a consultation with members of the examining board for counsel as to how his deficiencies might best be remedied or whether or not he should change direction.

It should be pointed out again that I have the highest admiration for every one of the present members of the Board of Internal Medicine and a profound appreciation of the difficult task they face.

In friendly discussions various members sharply disagree with some points brought up here—on perfectly reasonable grounds. However, since our specialty has special problems not faced by more narrow ones, a full discussion of the manner in which its practitioners are to be trained seems to be in order. The public should be assured of a quality product. On the other hand, care must be taken not to cramp the development of young men of imagination and unusual initiative by insisting on a too rigidly standardized training program.

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BUSINESS PRACTICE

This is the fifth in a series of excerpts from the brochure on the Business Side of Medical Practice, prepared by the American Medical Association in cooperation with the Sears-Roebuck Foundation.

FINANCING THE ESTABLISHMENT OF AN OFFICE

Setting up a medical office requires money—specific outlays for rent, equipment and furnishings, and possibly some remodeling, as well as enough to cover the doctor's living expenses during the practice-building period.

A physician is usually considered an excellent credit risk, but banks generally are not permitted to make unsecured loans. In the beginning, then, it may be wise to turn to the companies who outfit doctors' offices. Such companies will often help him finance his office if properly approached. The physician's first job is to appraise his actual financial needs over a period of several months, taking stock of his own reserves.

His financial evaluation sheet might include items like these: (1) cash on hand—income from part-time job as insurance examiner during first six months of practice, estimated income from practice during first six months; and (2) needs—first and last month's office rent, minor office alterations, office furniture, cost of instruments and equipment, cost of basic office supplies, stationery, cards and business records for office, estimated utilities, telephone charges at start, cost of necessary licenses and permits, estimated living expenses for first few months, including operation of car, and insurance.

Balancing his assets against his estimated expenses will give the new physician a rough idea of his financial needs. He will be in a better position to approach the people who can provide the necessary capital armed with facts and figures. His worst mistake would be to misrepresent his needs or current financial situation.

The companies which sell a physician equipment, supplies, and furniture are usually most liberal in extending credit and liberal payment terms. Some items of equipment, such as an x-ray unit, can be rented until the doctor can afford to buy one.

The physician should make a get-acquainted call on the president or an officer of the bank and state his intentions of opening an office. He can explain why he chose this particular community, announce his intentions of opening an account with the bank, and establish friendly rapport. If he does need a loan, the doctor's approach should be direct and business-like rather than apologetic. He is not asking for a favor but is presenting a business proposition. Prepared to lay all his cards on the table, the doctor is in effect saying: "Considering these facts, how much can you lend me?" If the banker is "sold" on the physician as a risk and the proposition outlined, he probably will lend all the law permits. A physician who makes his problem so interesting that the banker becomes interested in helping him solve it will fare well.

If a doctor still has need for additional funds, there are other sources he can investigate. He can check private loan companies or call on prominent citizens in the community he has selected, using the same approach he used on the banker. It is always easier to raise money in the community where he plans to practice. However, at this point a word of caution must be injected. Do not try to get everything at once if it involves an overload of debts. It is sometimes best to plan ahead for what seems to be a present need than to buy just because you can get it on credit.

Protecting Your Credit

Only the physician himself can protect his credit. Credit is based on confidence—faith in the person to whom it is extended. It is no sin to be in debt, but the doctor should clear up his indebtedness as soon as possible. Here are tips on guarding credit:

1. In paying all obligations, interest payments come first.

2. Pay all commercial bills promptly when due. If this is impossible, make a personal call on the store's credit officer, explain why payment is impossible, and tell him when it can be paid.

3. Because a physician cannot estimate monthly income at the start of his practice, it is best to make arrangements for repayment of the entire amount of a bank or personal loan at some specified date rather than on a monthly basis. Three to six months are customary time limits on unsecured loans, but notes can be renewed. Keep a calendar showing date of expiration for each note, and, if it cannot be repaid then, arrange to renew before it becomes due.

MEDICAL FILM REVIEWS

From the Heart of Town: 16 mm., color, sound, showing time 13 minutes. Produced in 1958 by William J. Ganz Company, New York, for E. R. Squibb and Sons, Division of Olin Mathieson Chemical Co., New York. Procurable on loan or purchase ($35.50) from American Red Cross, 1730 E St. N. W., Washington, D. C.

This film depicts the visit of a bloodmobile to a typical American town and demonstrates that community-level cooperation is essential to the success of the blood program. It tells of a community's preparation for and response to the visit of the bloodmobile and also shows how scientific research is developing the "prescription for life," including such blood products as gamma globulin, serum albumin, and fibrinogen and also the methods for obtaining, handling, storing, and processing whole blood. On the whole, this is a good film. Especially important is the section which deals with the various uses of the blood. Another important point which is brought out clearly is that industry also donates its services through research. The photography is very good. This film is recommended for use in local organizations, such as churches, civic groups, and schools in communities which are organizing a program of this kind.

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The purpose of this film is to develop an interest in bacteriology as a vocation, to show the studies in bacteriology pursued by college students, and to present the various vocational opportunities for those who study bacteriology. By photomicrography it shows protozoa, algae, molds, yeast, and bacteria, and by animation it shows the minute size of bacteria and their rapid rate of reproduction. Some of the actions of micro-organisms in the cause of and treatment for diseases, in the maintenance of soil fertility, and in the production of food for humans and food supplements for livestock and poultry are pointed out. This film aims primarily at making the profession of the bacteriologist attractive to the senior high school student and the college student in his first or second year before he has made up his mind about the choice of a career. It will also be of interest to the physician who is asked to speak on careers in the medical and health field. It may be of interest to the nurse, medical student, and public health worker. On the whole, it is well done technically and is correct factually.

NEW FILM AD
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Breech Delivery: 16 mm
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You Are There: The Discovery of Anesthesia: 16 mm., and white, sound, showing time 25 minutes. Produce 1956 for CBS Television. Procurable on rental or purch ($135) from McGraw Hill Book Co., 330 W. 42nd St., N York 36, or on loan ($2) from Motion Picture Librar American Medical Association, 535 N. Dearborn St., Chicago 10.

This is a dramatic and exciting presentation of the facts surrounding the discovery of anesthesia. Although certain small freedoms were taken with facts in order to make a more dramatic and pictorial presentation, in general, this is a very accurate portrayal of the early days of the discovery of anesthesia. One gathers from this picture that Crawford Long performed surgical anesthesia prior to Wells and Morton. Yet, he did not give this discovery to the world. There can be little doubt, however, that he deserves a place in the early discoverers because of his prior use of surgical anesthesia. That Wells had utilized anesthesia successfully in dental cases prior to Morton's surgical discovery on Oct. 16, 1846, is brought out in the film but somewhat slighted, as is the work of James Young Simpson. The place that Morton plays in the discovery of anesthesia is well portrayed. There can be little doubt but that this man, so beautifully portrayed in this movie, really gave anesthesia to the medical profession. This film is an excellent digest in portraying the discovery of anesthesia and is suitable for lay audiences, medical students, interns, residents, nurses, and the allied professions. The sound, photography, and over-all dramatic presentation are excellent.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Clinical Reconstruction of the "Bangungut Syndrome." J. B. Nolasco. J. Philippine M. A. 34:371-376 (June) 1958 [Manila].

The term "bangungut syndrome" had been coined to cover the typical signs and symptoms and the postmortem findings in young Filipinos who died suddenly during sleep after a heavy meal; "bangungut" is the Tagalog word for nightmares, which was chosen from common usage for convenience and not from agreements with the common belief that nightmares caused these unexplained deaths. The author reports the case of a 27-year-old man with bangungut syndrome, who, unlike the patients reported on previously, was able to tell some of his subjective feelings and who was subjected to at least a cursory physical examination before he died. A few hours before admission this patient had convulsive seizures, with groaning, lasting for several minutes while he was asleep. On regaining consciousness, he complained of epigastric pain, nausea, and salivation and was taken to hospital. On admission, the heart sounds were weak, the pulse imperceptible, the blood pressure was zero, and the pupils were symetrically dilated. Shortly after being placed in bed the patient had convulsive seizures, with transient cyanosis, groaning, rolling of the eyeballs for one minute followed by relaxation of the body, pallor, a short heaving respiration, and then apnea. Artificial respiration was applied, but the patient died.

With the clue given by this patient, the author began to be on the lookout for patients coming to the hospital at night with complaints referable to the respiratory, central nervous, circulatory, and digestive systems. Thus, the cases of 2 men and 2 women, between the ages of 17 and 51 years, were collected, which were considered to represent early stages of the bangungut syndrome. Two of these patients had nightmares; all of them had difficulty in breathing. One patient, a medical student, noticed decreasing pulse volume and rapid pulse; another had hypotension and tachycardia; the remaining 2 patients showed normal blood pressure levels, but their blood pressures were determined several hours after the attacks. Three had symptoms referable to the central nervous system, such as heaviness of the head, numbness, or loss of consciousness. Retinal edema was observed in one. All the patients gave a history of having previously eaten preserved fish or foods which have been considered as "bangungut-genic." A brother of one also had nightmares after eating the same food as the patient. Thus, the clinical features of the bangungut syndrome, so far detected, are as follows: The patient has eaten preserved fish or fish products; the acme occurs while the patient is asleep; manifestations may progress to death or may completely disappear within 24 hours; the respiratory, central nervous, circulatory, and digestive systems are the organ systems usually involved.

Aregenerative Anemia Associated with Benign Thymoma. B. Clarkson and D. J. Prockop. New England J. Med. 259:253-258 (Aug. 7) 1958 [Boston].

The authors present the histories of 2 patients in whom aregenerative anemia was associated with benign thymoma and point out that 14 cases with this syndrome have been described before. The suggestion that the association of thymoma and aregenerative anemia was not a matter of chance was first made by Humphreys and Southworth in 1945, when they found that cure of the anemia followed removal of the tumor. Thymectomy has been performed on 8 of 9 patients with the combination of thymoma and aregenerative anemia described since then, but the results of thymectomy have been far from uniformly successful. Only 1 of these 8 patients was cured, and 2 others obtained some alleviation of their anemia. One died within 24 hours of operation, and the other 4 had no apparent benefit from the operation. The 2 patients presented here likewise derived no benefit from the resection of the thymoma. One of the 2 patients is unusual in that the thymoma was removed 2 years before the development of the anemia.

No therapy, other than blood transfusions, was of benefit in patient's not responding to thymectomy, except perhaps splenectomy and corticotropin therapy in 2 patients. An extract prepared from the thymoma in one of the patients was infused intravenously for 10 days into a dog that had pre-

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The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1949 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

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NEW FILM ADDED TO A. M. A. MOTION PICTURE LIBRARY

Breech Delivery: 16 mm., color, sound, showing time 18 minutes. Prepared in 1955 by Professor Bruce Mayes, University of Sydney Department of Obstetrics, Sydney, Australia. Procurable on loan (service charge $3) from Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film demonstrates the types of breech presentation, relation to pelvic types, diagnosis by palpation, and x-ray; x-ray pelvimetry; and external version. Breech extraction is then demonstrated using Lovsett's technique to deliver the arms. This is a good teaching film which does not utilize any living person. Breech extraction is demonstrated on the obstetric manikin, and a stillborn, slightly macerated fetus is shown. For this reason, some persons might object to the film, and it is not recommended for showing to nurses. It embraces good general principles and is highly recommended for showing only to audiences of physicians.

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Clinical Reconstruction of the "Bangungut Syndrome." J. B. Nolasco. J. Philippine M. A. 34:371-376 (June) 1958 [Manila].

The term "bangungut syndrome" had been coined to cover the typical signs and symptoms and the postmortem findings in young Filipinos who died suddenly during sleep after a heavy meal; "bangungut" is the Tagalog word for nightmares, which was chosen from common usage for convenience and not from agreements with the common belief that nightmares caused these unexplained deaths. The author reports the case of a 27-year-old man with bangungut syndrome, who, unlike the patients reported on previously, was able to tell some of his subjective feelings and who was subjected to at least a cursory physical examination before he died. A few hours before admission this patient had convulsive seizures, with groaning, lasting for several minutes while he was asleep. On regaining consciousness, he complained of epigastric pain, nausea, and salivation and was taken to hospital. On admission, the heart sounds were weak, the pulse imperceptible, the blood pressure was zero, and the pupils were symetrically dilated. Shortly after being placed in bed the patient had convulsive seizures, with transient cyanosis, groaning, rolling of the eyeballs for one minute followed by relaxation of the body, pallor, a short heaving respiration, and then apnea. Artificial respiration was applied, but the patient died.

With the clue given by this patient, the author began to be on the lookout for patients coming to the hospital at night with complaints referable to the respiratory, central nervous, circulatory, and digestive systems. Thus, the cases of 2 men and 2 women, between the ages of 17 and 51 years, were collected, which were considered to represent early stages of the bangungut syndrome. Two of these patients had nightmares; all of them had difficulty in breathing. One patient, a medical student, noticed decreasing pulse volume and rapid pulse; another had hypotension and tachycardia; the remaining 2 patients showed normal blood pressure levels, but their blood pressures were determined several hours after the attacks. Three had symptoms referable to the central nervous system, such as heaviness of the head, numbness, or loss of consciousness. Retinal edema was observed in one. All the patients gave a history of having previously eaten preserved fish or foods which have been considered as "bangungut-genic." A brother of one also had nightmares after eating the same food as the patient. Thus, the clinical features of the bangungut syndrome, so far detected, are as follows: The patient has eaten preserved fish or fish products; the acme occurs while the patient is asleep; manifestations may progress to death or may completely disappear within 24 hours; the respiratory, central nervous, circulatory, and digestive systems are the organ systems usually involved.

Aregenerative Anemia Associated with Benign Thymoma. B. Clarkson and D. J. Prockop. New England J. Med. 259:253-258 (Aug. 7) 1958 [Boston].

The authors present the histories of 2 patients in whom aregenerative anemia was associated with benign thymoma and point out that 14 cases with this syndrome have been described before. The suggestion that the association of thymoma and aregenerative anemia was not a matter of chance was first made by Humphreys and Southworth in 1945, when they found that cure of the anemia followed removal of the tumor. Thymectomy has been performed on 8 of 9 patients with the combination of thymoma and aregenerative anemia described since then, but the results of thymectomy have been far from uniformly successful. Only 1 of these 8 patients was cured, and 2 others obtained some alleviation of their anemia. One died within 24 hours of operation, and the other 4 had no apparent benefit from the operation. The 2 patients presented here likewise derived no benefit from the resection of the thymoma. One of the 2 patients is unusual in that the thymoma was removed 2 years before the development of the anemia.

No therapy, other than blood transfusions, was of benefit in patient's not responding to thymectomy, except perhaps splenectomy and corticotropin therapy in 2 patients. An extract prepared from the thymoma in one of the patients was infused intravenously for 10 days into a dog that had pre-

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viously been given acetylphenylhydrazine to induce an anemia and erythroid hyperplasia. No inhibition of erythropoiesis was produced by the thymoma extract. The establishment of the true relation between thymoma and aregenerative anemia will require further studies on patients who have this combination. If normal erythropoiesis had developed after thymectomy in their second case, the authors had planned to attempt to reproduce the anemia by injecting an extract of the tumor. This should probably be tried when further patients are found who are benefited by removal of the tumor.

Giant-Cell Granuloma of the Respiratory Tract (Wegener's Granulomatosis). E. W. Walton. Brit. M. J. 2:265-270 (Aug. 2) 1958 [London].

The author reports on 7 men and 3 women, between the ages of 33 and 75 years, with a syndrome characterized by symptoms of progressive ulceration in the respiratory tract, together with signs of widespread inflammatory disease to which the name "Wegener's granulomatosis" has been applied by other workers. Forty-six additional cases of this syndrome in 26 male and 20 female patients, between the ages of 12 and 70 years, were selected from the literature. Two groups were distinguished as follows: In the first group of about 40 patients, persistent purulent rhinorrhea was accompanied by nasal obstruction and crusting, antral pain, and epistaxis. Otorrhea, deafness, or ulceration of the gums were the initial symptoms in a few of these; later rhinorrhea occurred in each. In the second and smaller group, attention was drawn to the lungs because of chronic cough, hemoptysis, or pleurisy. Often the constitutional upset was out of proportion to the apparent intensity of the local lesion, and the patients sought advice because of persisting malaise, fever, or weakness. The course was usually rapid, progressing to death in 5 months, on the average, and occasionally in 4 weeks. Five of the 56 patients had a more chronic illness, with periods of remission and survival up to 4 years. Though temporary improvement sometimes followed antibiotic treatment, the local lesion always persisted. Spread of the inflammatory process led to extensive mucosal ulceration and cartilaginous or osseous destruction in the nose and palate of the patients in the first group, and to widespread pulmonary consolidation in those in the second group. Sooner or later signs of widespread inflammatory disease, such as fleeting arthralgia, numbness and tingling in the extremities, sensory loss, muscle weakness or paralysis, and a hemorrhagic vesicular rash, most frequent on the skin of the face, wrists, and elbows, and the oral mucosa, occurred in all the patients. On roentgenologic examination, the lungs of 38 patients showed dense circular or oval opacities in one or more lobes, often with central cavitation, and varying in size up to that of a hen's egg. Less often bronchopneumonic infiltration was the only notable change.

The basic pathological features were giant-cell granulomatous ulcers at one or more levels in the respiratory tract; the ulcers involved the nose and paranasal sinuses in 34 patients, palate and pharynx in 21, tongue in 7, larynx in 14, trachea in 17, and bronchi in 23. In addition to the ulceration of the respiratory tract, widespread giant-cell granulomas and necrotizing lesions of small vessels were observed. The characteristic round or oval consolidations in the lungs were not infarcts but conglomerate areas of peribronchial necrosis. The kidneys were severely affected in all but 3 patients; enlargement and blurring of the architecture were the usual macroscopic changes, and focal "fibrinoid" necrosis of glomerular loops and periglomerular granulomatous inflammation were almost constant microscopic findings. The disease is clearly a separate entity, differing both clinically and in the character and distribution of the lesions from similar conditions, such as polyarteritis nodosa and malignant granuloma. It begins as a progressive ulceration of unknown causation in the respiratory tract. Sooner or later widespread lesions, the result of a hypersensitivity reaction, complete the aspect of the disease. Treatment should be primarily directed toward healing of the initial lesion, and radiotherapy proved to be successful in some cases, with control of secondary infection by suitable antibiotics. Administration of cortisone or other steroids is the treatment of choice, once widespread lesions have occurred.

Precirrhosis: Its Clinical Entity. E. Aron and P. Jobard. Arch. mal. app. digest. 47:849-860 (July-Aug.) 1958 (In French) [Paris].

Cirrhosis is characterized by a structural derangement of the liver caused by extensive generalized fibrosis. Exact classification of the various stages of the disease is based on the anatomic appearance of the liver, but for the practitioner cirrhosis may be regarded as either a hypertrophic or an atrophic process leading to failure of hepatic function, hemorrhage, ascites, and edema. Hepatologists who have studied the cirrhotic process distinguish 2 stages in its early development: (1) alcoholic precirrhosis, which comprises all forms of alcoholic hepatitis, steatotic and cytolytic, in which the 3 histological elements characteristic of cirrhosis (a zone of cellular atrophy, hyperplastic nodules, and sclerosis) are present in varying combinations and to varying degrees, and (2) beginning alcoholic cirrhosis, in which the cirrhosis is clearly established. Obvious alcoholic cirrhosis in its later form, when it can be diagnosed on the basis of the clinical findings without recourse to laboratory studies, should be regarded as a terminal stage of the disease. Distinction between the precirrhotic and cirrhotic stages is not always easy; systematic examination of the liver in alcoholic patients often reveals histological evidence of anatomic cirrhosis, which cannot be confirmed either by the clinical signs or by the results of biological tests. Similarly, the histological aspect of the liver does not always indicate the subsequent course of the disease. Thus, simple steatosis may be associated either with a minor clinical state or with a course of the utmost gravity. This absence of parallelism between the histological and biological findings, on the one hand, and the clinical symptoms, on the other, which was evident in many of the 166 alcoholic patients admitted to the authors' service in 1957, is discussed in greater detail on the basis of 9 illustrative case reports.

The data presented suggest the advisability of regarding all enlargements of the liver in alcoholic patients as precirrhotic, keeping in mind, however, the important fact that enlargement of the liver is not always present in these patients. Alcoholic precirrhosis should not be neglected or dismissed as commonplace; on the contrary, it should be regarded as an extremely serious condition which has an unpredictable course and which must be treated promptly and energetically. Prompt treatment, with complete elimination of alcohol, in the precirrhotic period, which may extend over many years, is, in fact, the only way to prevent the development of cirrhosis.

Carcinoma of the Colon under the Age of 40. J. A. Ezzo, J. F. Sullivan and R. E. Mack. Ann. Int. Med. 49:321-325 (Aug.) 1958 [Lancaster, Pa.].

Of 840 patients with pathologically proved carcinoma of the colon, who were admitted to the St. Louis University Hospitals between January, 1950, and May, 1957, 32 (19 men and 13 women) were under the age of 40 years. Twelve of them, who were between the ages of 23 and 39 years, had carcinoma of the rectum. Eight of these patients died 3 to 58 months after the diagnosis. The remaining 4 patients were alive and well 5 to 24 months after the diagnosis was made. The remaining 20 of the 32 patients had carcinomas of other portions of the colon than the rectum. One patient could not be followed up and is presumed to be dead. Thirteen patients died within 3 to 28 months after they had been seen. Two patients are alive but have metastatic disease 6 and 24 months after the onset, and 1 patient is alive 6 months after operation for a ruptured carcinoma of the cecum. The remaining 3 patients are alive and well 1 to 4 years postoperatively. Thus, of a total of 32 patients with malignant tumors of the colon, 25 are dead or fatally ill. Seven patients are living without disease 5 to 48 months postoperatively. If one presumes that these 7 patients will live 5 years or more, the very best the 5-year survival rate can be is 21.7%.

It is difficult to explain the very poor prognosis in this group of young patients. Their symptoms, including melena, pain, constipation, diarrhea, and weight loss, had been present for the same period of time as in the older patients. Surgery was not unduly delayed in any patient. As a group these patients were better operative risks than their older counterparts, and, although operative mortality rates reported by other workers have generally been quite high, varying from 3.0 to 9.6%, there were no operative deaths in this series. The absence of lymphatic or vein invasion at the time of surgery was of little prognostic value. Two patients who had had no evidence of spread at surgery died of metastatic disease within one year. This observation confirms Dukes's statement that lesions of the rectum give rise to metastases more rapidly in young patients than in those who are older. Carcinoma of the colon apparently has an accelerated course in patients under 40 years of age.

Chronic Adrenocortical Insufficiency (Addison's Disease). A. M. de Andino Jr. and J. Pérez Cruet. Bol. Asoc. méd. Puerto Rico. 50:163-170 (May) 1958 (In English) [Santurce].

Chronic adrenocortical insufficiency either is idiopathic or is caused by tuberculosis of the adrenal gland and, more rarely, is due to bilateral tumoral metastases, leukemic infiltration, amyloid disease, hemochromatosis, or histoplasmosis. The disease is characterized by malaise, fatigability, gastrointestinal disorders, loss of weight, progressive anemia, low blood pressure, dizziness, a weak heart, severe prostration, bronze-like pigmentation of the skin, mental disorders, and loss of the sexual function. The disease is either congenital or acquired. The congenital type is seen in premature infants whose mothers have had deficient adrenocortical secretion; the infants die in the neonatal period. The disease of the acquired type may be transient, such as that which follows administration of steroids for a prolonged period, or it may be primary and complicated by tuberculosis or other chronic infection.

The authors report the first proved case of chronic adrenocortical insufficiency in a Puerto Rican woman, 48 years old. The symptoms were typical and had lasted for 8 months when the patient reported to hospital. The patient was given cortisone, 200 mg., Cortate, 10 mg., and an intravenous drip of 1 liter of 5% dextrose in isotonic sodium chloride solution. The maintenance treatment consisted of a daily dose of cortisone, 20 mg., of Cortate, 4 mg., and of sodium chloride, 8 Gm. The treatment was continued for 3 consecutive weeks, discontinued for 3 weeks, given for 2 weeks, discontinued for 3 days, and again given, a dose of 12.5 mg. of cortisone being administered for 2 more weeks. The treatment of pulmonary tuberculosis was started immediately upon the patient's hospitalization and was continued throughout the treatment for chronic adrenocortical insufficiency. It consisted of the administration of isoniazid in daily doses of 300 mg. and of streptomycin in daily doses of 1 Gm. At the end of 3 months of hospitalization and treatment, the symptoms of adrenocortical insufficiency had disappeared. The patient gained 26 lb. in weight. She was transferred to a hospital for tuberculous patients for further antituberculous treatment.

The Serum Protein Picture in Gastroduodenal Ulcer. R. Dupuy and A. Beaune. Semaine hôp. Paris 34:1979-1982 (July 18-28) 1958 (In French) [Paris].

Published data on protein metabolism in patients with ulcer have been reviewed, together with the authors' own observations on 36 patients. It appeared, in spite of some contradictory findings, that abnormal serum protein levels were present in all the patients with gastroduodenal ulcer. This abnormality affects either the total protein level or the various protein fractions or, concurrently, one protein fraction and the total protein level. Moreover, the serum protein picture does not seem to be influenced by antalgic drugs during the acute stage of the ulcerative disease. The protein picture of the patients was abnormal, not only during periods of acute pain but also during periods of remission, during which it was characterized by great instability. The transition from a period of remission to an acute stage of the ulcerative disease is apparently accompanied by an increase in the disturbances in the serum protein level. The changes observed in the serum protein values differed in patients belonging to different ethnic and geographic groups, but whether these differences are due to ethnic or to nutritional or climatic influences is not now known.

Influence of Protein Therapy on the Serum Protein Picture in Patients with Ulcer. R. Dupuy and A. Beaune. Semaine hôp. Paris 34:1983-1986 (July 18-28) 1958 (In French) [Paris].

The occurrence of abnormalities in the serum protein picture in patients with duodenal ulcer during periods of painful exacerbation, previously reported by the authors, has been confirmed by further studies. These changes can be corrected, at least partially, by intravenously administered protein. The 36 patients studied were given protein in the form of peptones in 30 intravenous injections distributed over 30 or 60 days, as required in each case. The results were verified by a standard procedure, consisting of 3 determinations of the serum protein level at certain intervals: the first, before treatment; the second, 5 to 10 days after the beginning of treatment; and the third, at the end of treatment, i. e., 30 or 60 days after the first examination. Treatment brought about a decrease in elevated serum protein values and an increase in those that were reduced. As a general rule, the serum albumin level, which was increased at first, decreased steadily from the beginning to the end of treatment, usually reaching nearly normal values. The serum globulin level, which was normal at the beginning of treatment, increased during the first days of treatment and then returned to the initial value. These variations in the serum albumin and the serum globulin level led during the first phase of the treatment to a significant decrease in the albumin-globulin ratio; the ratio might later increase slightly, but in any case it would settle down at the end of treatment to a level that was nearly normal and was lower than it was in the beginning. By contrast, the serum protein titers in patients with ulcer do not seem to be corrected by various other treatments, such as gastric fomentations or the administration of protein hydrolysates or vitamin or atropine compounds.

The mechanism by which protein therapy acts to produce changes in the serum protein picture is not yet clear, but the indications are that the peptones have an anti-inflammatory effect and that they also act specifically on the reticuloendothelial system. Further study will be needed to clarify these points and to establish the extent to which protein therapy may be regarded as a specific treatment for duodenal ulcer.

Adrenal Hypofunction After Corticoid Withdrawal. A. Vermeulen. Acta endocrinol. 27:321-330 (July) 1958 (In English) [Copenhagen].

Since the introduction of such potent synthetic glucocorticoids as prednisone and prednisolone, the incidence of adrenocortical hypofunction has increased. These steroids are at least 4 times as active in depressing adrenocortical activity as similar doses of cortisone. In view of these facts the author investigated the reactivity of the adrenal cortex to exogenous corticotropin, after a prolonged period of prednisone or prednisolone therapy, by the daily determination of urinary 17-hydroxycorticoids. All 25 patients were treated with prednisone or prednisolone according to various dosage schedules. During the treatment they all received a weekly intramuscular injection of 20 I. U. of corticotropin. Eleven patients had rheumatoid arthritis, 5 had acute rheumatic fever, 1 had infectious mononucleosis, 1 had ulcerative colitis, and 7 had bronchial asthma. Prior to hormone administration the adrenocortical function of the patients was assumed to be normal.

The author found that adrenocortical hyporesponsiveness to stress is frequent after prolonged treatment with prednisone or prednisolone, as shown by the low 17-hydroxycorticoid excretion after corticotropin stimulation. This hypofunction of the adrenals may persist for months after corticoid therapy has been stopped, and situations of stress, such as severe infection and major operation, may prove fatal because of acute adrenal insufficiency. Weekly injections of corticotropin during prolonged prednisone or prednisolone therapy do not seem to prevent this adrenal hyporesponsiveness, and a few injections of corticotropin at the end of the treatment are not sufficient to prevent this adrenocortical insufficiency. The author recommends that each series of treatment with prednisone or prednisolone be terminated by giving corticotropin for 5 or 7 days together with prednisone or prednisolone in decreasing doses and then administering corticotropin alone for 3 days. This seems to reduce the risk of hypocorticalism.

SURGERY

Surgical Ascariasis in Children: A Review of 50 Cases. N. Fernando. J. Trop. Pediat. 4:61-70 (Sept.) 1958 [New Orleans].

Obstruction has been the commonest surgical complication of ascariasis, the condition usually commencing with vomiting, often after the administration of a vermifuge. In the 50 cases reviewed, 28 of the children had been given a vermifuge a few days prior to admission. Associated with the vomiting was colicky abdominal pain, mild at the onset but gradually increasing in severity and localized to the umbilicus. The child often vomited roundworms and had constipation, and in the more advanced cases there was abdominal distention with visible peristalsis. An ill-defined sausage-shaped mass lying transversely across the lower abdomen, more often to the right, was found. In the majority of these malnourished children the worms could be palpated through the abdominal wall, and the lump of worms was often disclosed at rectal examination.

That obstruction is at least partly mechanical is shown by the longitudinal disposition of the worms along the length of the intestine, twisted very much in the fashion of ropes. The worms, whose natural habitat is the upper part of the small intestine, may partially or completely obstruct the lumen of the intestine, may vary from a few to several hundreds in number, are often twisted tightly upon themselves, and may thus be propelled onwards along the intestine like a sausage or foreign body. The obstruction may be partly due to spasm of the intestinal muscles, caused by the irritation and reaction of the chitin from the outer covering of the worm's body on the intestinal mucosa of the host, or the introduction of a purgative or vermifuge may cause the worms to secrete a toxic fluid which will initiate the spasm. Although rare, intussusception can be caused by the roundworm, and 4 such examples were encountered in the present series. Volvulus caused by the Ascaris parasites is rare and often fatal, 3 such cases being described in this series. In acute obstruction with peritonitis at operation, a perforation with ascarides in the peritoneal cavity is frequently found. However, no perforations were found associated with obstruction in this series, although a search was made in 4 cases. In the remaining 24 cases a perforation was found in either the appendix, the jejunum, or the ileum. It is of note that many examples have been reported where no perforations were detected, although live roundworms were found in the peritoneal cavity.

The presence of an Ascaris infection in the various organs produces no pathognomonic pattern. Since the small intestine is the habitat of ascarides, the commonest symptoms are referrable to this viscus and vary from vague epigastric distress, nausea, or vomiting to the severest excruciating abdominal pain of perforation or obstruction. There may be associated systemic manifestations, such as anemia, fever, malnutrition, anorexia, lassitude, insomnia, urticaria, headache, and, rarely, convulsions. The diagnosis depends on the identification of the ova or the worms in the feces. Two methods are commonly employed in the treatment of obstructions: (1) manual disengagement of the Ascaris bolus without enterotomy, and milking the worms into the cecum by gentle manipulation; and (2) enterotomy with evacuation.

Tracheotomy for Treatment of Postoperative Respiratory Insufficiency. J. Wassner and H. L'Allemand. Chirurg 29:342-345 (Aug.) 1958 (In German) [Berlin].

The authors report on 32 surgical patients on whom tracheotomy was performed to prevent postoperative respiratory insufficiency or to combat manifest respiratory acidosis. Of the 32 patients, 12 had injuries of the cranium and brain, 5 had been operated on for cranial injuries, 3 had operations on the neck, 1 had an abdominal operation, 9 had undergone thoracic surgery, and 2 had tetanus. Eighteen patients died; death resulted from the primary disease in 14, tracheotomy was performed too late on 2, and 2 were beyond help. Fourteen patients survived. These data show the high incidence of respiratory insufficiency, particularly after injuries of the cranium and brain, in which unconsciousness and a deficient peripheral circulation resulting from impairment of the brain stem favor the development of pneumonia.

Respiratory insufficiency is always a danger to be kept in mind when additional damage is sustained by lungs already handicapped by emphysema, asthma, or the rigidity of the thorax in older patients. Such additional respiratory embarrassment consists of loss of mobility of the diaphragm, painful trauma of the thorax, serial rib fractures, or unilateral and bilateral pneumonia after cranial trauma and barbituric acic poisoning. Rest in bed as such may bring on this condition in patients with asthmatic bronchitis. Tracheotomy should be considered in all patients in whom the occurrence of respiratory insufficiency is suspected. When performed too early in doubtful cases, tracheotomy will not be harmful. Indications for tracheotomy depend on clinical experience rather than on special laboratory reports. The authors are convinced that the number of surgical patients who may be helped by tracheotomy is not small. In certain cases in which tracheotomy alone is insufficient, it should be supplemented with artificial respiration.

Prognosis in Patients with Carcinoma of the Stomach. H. Denck and F. Helmer. Chirurg 29:289-294 (July) 1958 (In German) [Berlin].

The authors report on 1,429 patients with carcinoma of the stomach who were admitted to the second surgical clinic of the University of Vienna between 1933 and 1955. The tumor was located in the fundus or at the cardia in 25.4% of these patients. It was possible to perform resection in 43.2%. Sixty-five per cent of the patients with carcinoma of the antrum had operable lesions as compared with only 44% of those with carcinoma of the body of the stomach and 39% of those with high location of the tumor. The duration of the disease and the age of the patient at the time of the operation had no effect on the operability. The primary operative mortality rate within the first 4 postoperative weeks was 21.5%, with 16.8% after partial resection according to Billroth 1 and 2 operations, 33.6% after total gastrectomy, and 32.5% after resection of the cardia. The operative mortality rate in the patients between the ages of 20 and 39 years was 7.4%; in those between the ages of 40 and 59 years it was 16.3%; and in those between the ages of 60 and 80 years it was 27.2%. The operative mortality rate was 14.3% in patients with carcinoma of the antrum, 22% in those with carcinoma of the body of the stomach, 33.5% in those with carcinoma of the cardia, and 31.5% in those in whom the entire stomach was involved. These figures represent the average for a 22-year period. Since 1951, as a result of the use of antibiotics and modern methods of combating shock, the primary operative mortality rate was reduced to 11% after Billroth 1 and 2 resections, to 29% after total gastrectomy, and to 23% after resection of the cardia.

Of 463 patients who were discharged after radical gastric resection, 43 were lost to follow-up; 67.5% of the remaining 420 patients were still alive after 1 year, 46% after 2 years, and 36% after 3 years, while the 5-year survival rate was 28%. The 5-year cure rate in all the patients with carcinoma of the stomach admitted to the clinic was 8.5%. The life expectancy thus can be extended by surgical treatment to 5 years or longer for hardly 10% of the patients. The term "wide resection" was applied to a resection area in which the tumor was at a distance of more than 3 cm. from both the resection margins (histologically), and the term "limited resection" was used for other resection areas. Three years after a wide resection, 40% of the patients were still alive, and 32.5% were alive after 5 years; the corresponding figures for the limited resection were 28 and 19% respectively. Consequently, the broadest possible resection in healthy tissue is required.

In contrast to the general assumption that the prognosis is particularly unfavorable in young patients with carcinoma, the survival time was not shorter among younger patients who underwent resection than among those of more advanced age. Although the chances for a permanent cure are becoming better after a 5-year survival, the possibility of recurrence of carcinoma still remains even after a longer postoperative interval, and several such cases were observed. The higher mortality rate among patients with a shorter preoperative duration of their disease than among those with a longer duration does not suggest a better prognosis for a patient with carcinoma of long preoperative duration; rather the prognosis is better for one with a slowly growing carcinoma for which he may consult a surgeon only late. A 5-year survival was obtained by 26% of those who underwent resection for carcinoma of the antrum, by 37% of those with resection for carcinoma of the body of the stomach, and by only 13% of those with resection for carcinoma of the cardia. The more favorable prognosis in patients with carcinoma of the body of the stomach appeared to be statistically significant. The prognosis also appeared significantly more favorable in patients with carcinoma of the polypoid-cauliflower types than in those with infiltrating tumors. The life expectancy was considerably reduced in patients with lymph node metastases, even if it seemed that macroscopically the metastases were radically removed. Routine cytostatic treatment after radical surgical intervention and cytostatic therapy after intentionally performed palliative resection in selected patients are recommended in order to improve the results of surgical treatment and with these the prognosis for those with carcinoma of the stomach.

Problems of Acute Cardiac Arrest and Its Treatment. K. Spohn and E. Kolb. Chirurg 29:346-352 (Aug.) 1958 (In German) [Berlin].

Cardiac arrest occurred in 5 of 15,521 patients operated on at the surgical clinic of the University of Heidelberg in 1956 and 1957, i. e., an incidence of 0.032%, or 1 case of cardiac arrest in 3,104 surgical interventions. Of the 5 patients, 3 were men, between the ages of 31 and 57 years, operated on for bronchial carcinoma, stenosis of the aortic valves, and hydrops of the gallbladder, respectively, and 2 were women, aged 51 and 56 years, operated on for benign pyloric stenosis and cancer of the breast respectively. The man with aortic stenosis and the 2 women died.

In the first male patient, in whom cardiac arrest occurred twice at short intervals in the course of pneumonectomy for bronchial carcinoma, electrical defibrillation was successful both times with the first electrical impulse. Spontaneous rhythmic action with sufficient performance was immediately restored. Reflexes originating in the hilus were the main cause of ventricular fibrillation, and the favorable course resulted from the early diagnosis of the cardiac arrest in the open thorax and its rational treatment. The second male patient died in the operating room; there was extreme hypertrophy and also dilatation of the left ventricle, and its blood perfusion was deficient due to the severe aortic stenosis and inadequate coronary circulation. Electrical defibrillation became effective only with the third electrical impulse, but the resulting spontaneous action remained insufficient because of the high degree of hypoxia of the myocardium caused by the intracardiac manipulation and temporary obturation of the aortic valve by the surgical instruments. In the third male patient fibrillation occurred before the operation was started. Some time elapsed before the diagnosis was made and the heart was exposed. Hypoxia had developed in the myocardium, and defibrillation was successful only after several electrical impulses and after intensive intrapericardial massage. The favorable course, despite the relatively long duration of ventricular fibrillation in this 31-year-old patient, was explained by the predominantly functional factors which elicited the arrest.

In the first female patient who underwent gastrectomy, treatment of cardiac arrest consisted exclusively of transdiaphragmatic cardiac massage. Action of the heart was restored by a mechanical stimulus (the clamping of a vessel onto the diaphragm), suggesting hyperexcitability of the autonomic nervous system; the presence of an asystole was assumed. Pulling on the ligamentum hepatogastricum, and on the mesentery very likely, were the reflex-eliciting events, since the arrest immediately followed these manipulations. In the second female patient an initial total atrioventricular dissociation with insufficient ventricular performance turned into asystole. Intravenous administration of arterenol and epinephrine was ineffective. An attempt at transthoracic administration of electrical impulses failed. Only then were thoracotomy and cardiac massage performed, but the asystole no longer responded to therapy and the patient died.

These observations confirm the experiences of other workers that ventricular fibrillation can be controlled easier than asystole. Defibrillation was possible in all 3 patients with ventricular fibrillation, and morphologic reasons were responsible in 1 of them in whom the restored spontaneous action remained insufficient. Of the 2 patients with asystole, circulation could be restored in only 1, but interruption of the cerebral circulation, although of short duration, with the resulting severe irreversible impairment, caused the death of this 56-year-old patient.

NEUROLOGY & PSYCHIATRY

Encephalitis Caused by Asian Influenza. D. Furtado. Rev. neurol. 98:192-205 (No. 3) 1958 (In French) [Paris].

The author reports the case of a 21-year-old soldier who served at an air force base near Lisbon, Portugal, where the entire military personnel had been attacked by an epidemic of Asian influenza. This soldier, like all his comrades, had fever, cough, and catarrhal symptoms at the onset of his illness, but from the onset he also had a marked disturbance of consciousness and spasms of the muscles acting on the jaws. He had 2 generalized convulsions on the second day of illness and was admitted to hospital in status epilepticus. His blood pressure was somewhat low, and he sweated profusely. The extremities were flaccid; the reflexes of the upper extremities were weak, and those of the lower extremities were abolished. There was papillary edema of the right eye. Auscultation revealed severe bronchitis. Treatment with phenobarbital, chlorpromazine (Largactil), and tetracycline was instituted, and lumbar puncture was performed. The next day the patient had no convulsions but was in stupor. The temperature which was 39.5 C (103 F) at onset remained high, and the bronchitis became worse. On the 5th day the stupor deepened, the temperature rose to 40 C (104 F), and death occurred after another epileptic attack.

Autopsy on this patient revealed a hemorrhagic tracheobronchitis, diffuse foci of hemorrhagic bronchopneumonia, and some hemorrhagic foci in the ventricular septum of the heart. Microscopic examination of the central nervous system showed lesions in the main portion of the brain, particularly in the protuberance and in the central nuclei, and less severe lesions in the cerebral cortex and the cerebellum. These lesions consisted of dilatation and congestion of all the vessels, including also the capillaries. Hemorrhagic foci were observed in the parenchyma adjacent to the vessels. The vessel walls were inflamed, and there was infiltration of the Virchow spaces and perivascular edema. The ganglion cells and nerve fibers were affected. There was also extensive infiltration by mononuclear, hematogenous, and glial cells. The leptomeninges were congested and inflamed.

There was no biological proof that Asian influenza had caused this patient's encephalitis, since the virus had not been isolated from him. Yet the clinical presumption was extremely strong, since the patient belonged to an epidemic center with several hundred cases and the Asian variety of influenza, type A, virus had been isolated from some of the patients. The autopsy findings in this patient of hemorrhagic tracheobronchitis and small diffuse foci of bronchopneumonia with a tendency to hemorrhage were exactly the same as in other patients who had died of the influenza. The conclusion that the case was one of severe influenza associated with diffuse and fatal encephalitis, therefore, seemed to be justified. The extensive and early involvement of the nervous system in this patient is suggestive of a direct attack of the influenza virus on this system, similar to that observed in patients with Japanese B encephalitis, rather than of an allergic process so often held responsible for such cases.

Negative Bacteriological and Serologic Results on Reexamination of Problem of Mycobacterial Etiology of Multiple Sclerosis. H. Bauer, K. Bonitz and V. A. Salchow. Medizinische, No. 29/30, pp. 1128-1132 (July 26) 1958 (In German) [Stuttgart, Germany].

In an attempt to reexamine the concept that multiple sclerosis is a mycobacterial disease, the authors carried out a bacterioscopic study for acid-fast bacteria in the cerebrospinal fluid obtained from 17 patients with multiple sclerosis. The precipitate obtained by centrifugation of the cerebrospinal fluid of these patients was used for culture experiments on various mediums and also for inoculation into guinea pigs. In none of these patients was it possible to demonstrate mycobacteria pathogenic to man or animals or saprophytic mycobacteria. In 2 specimens of cerebrospinal fluid, rod-shaped acid-fast structures were observed microscopically, but culture and animal experiments carried out with these specimens gave negative results.

Serologic studies, including complement-fixation reaction, flocculation reaction, hemagglutination, and hemolysis, were performed on 79 persons, 58 of whom had multiple sclerosis and 21 served as controls. The evaluation of the combined results of these studies with regard to tuberculosis revealed positive findings in 7 of the 58 patients, doubtful findings in 7 others, variable findings in 3, and negative findings in 41. Findings were positive in 1 of the 21 control persons, doubtful in 2, and negative in 18. The absolute frequency of positive and doubtful results obtained in patients with multiple sclerosis and the comparative results obtained in control persons do not permit drawing conclusions concerning a mycobacterial causation of multiple sclerosis.

Further Studies of an Epidemic of Exanthem Associated with Aseptic Meningitis. D. A. J. Tyrrell, R. R. Lane and B. Snell. Quart. J. Med. 27:323-333 (July) 1958 [London].

The authors report an epidemic of a febrile disease with headache, which involved 85 patients seen between September and November, 1956, in a practice covering about 3,500 persons in a mixed mining and rural area near Sheffield, England. There were only 8 adult patients, and nearly all the others were children, less than 10 years of age; parents and children were affected in 12 families. Many patients had a maculopapular rash, lymphadenopathy, aseptic meningitis, and lesions of the buccal membrane, either separately or in combination. Vomiting was a common initial symptom, and some adults complained of myalgia. The disease was benign, but convalescence was sometimes rather long. Thirty-three strains of the virus were isolated, and rising antibody titers were revealed by 3 separate methods in 10 of 14 patients. Similar studies of control patients gave negative results. The virus was associated with all forms of the disease and probably caused it. The isolated strains of the virus were of identical type and were related to Coxsackie, group A, viruses and enteric cytopathogenic human orphan (ECHO), type 9, virus. The same virus was recovered in similar cases in many parts of the Western world at about the same time. The authors have proposed the term "benign exanthematous virus meningitis" for this syndrome.

Influence of Temporal Lobectomy on the Mental Condition of Patients with Psychomotor Epilepsy. T. Alajouanine, J. Nehlil and R. Houdrat. Rev. neurol. 98:165-171 (No. 3) 1958 (In French) [Paris].

The authors report on 22 patients with psychomotor epilepsy who underwent temporal lobectomy performed with the aid of electrocorticography; the pole of the temporal lobe was removed and the excision extended in depth to the cornu Ammonis and, if possible, to the amygdaloid nucleus. In 18 of the 22 patients the psychomotor epilepsy was associated with mental disorders; 3 of these had mental debility and were, therefore, excluded; of the remaining 15, 7 had severe mental disturbances, and 8 had minor mental disturbances. The 7 patients with severe mental disturbances were divided into 2 groups, one including 4 patients with manifestations of depression and the other including 3 patients with severe character changes associated with violent impulsion. Of the 4 patients with depression, the manifestations in 3 were not improved by the operation, but in 1 the depressive tendency was considerably improved; the irritable and unbearable patient became quiet and euphoric and appeared to be surprised himself that he had been impatient and depressed; he was able to resume his activities. The patients with severe character changes associated with violent impulsion were those who benefited most from the operation. One of them no longer had the compulsive urge to chastise the interrogator or to take possession of a car and drive away at maximum speed. Another who had constantly terrorized his parents and siblings with his persecution complex and suicide threats was completely transformed; he was quiet and able to work like a normal person. A child whose compulsive urges had led to acts of violence against his family and schoolmates was able to lead a normal life within the family. The 8 patients with minor mental disturbances underwent temporal lobectomy not for their mental troubles but for their refractory psychomotor seizures. The seizures of these patients improved considerably, and so did their psychic behavior. Although there was no strict parallelism in all the 15 patients between the effect of the lobectomy on the psychomotor seizures and on the associated mental disturbances, as a rule those patients whose psychomotor seizures were most favorably influenced by the operation also showed the most definite mental transformation. These observations suggest that in psychomotor epilepsy severe mental disturbances are a strong indication for surgical treatment.

First Poliovirus Isolations Done in Hawaii: Preliminary Report. C. K. S. Yuen, W. H. Civin and P. Y. Tamura. Hawaii M. J. 17:537-538 (July-Aug.) 1958 [Honolulu].

The authors report on 6 boys and 7 girls, between the ages of 9 months and 5 years, in 12 of whom a diagnosis of paralytic poliomyelitis and in 1 of "aseptic meningitis" was made clinically. Of the 13 patients, 8 had not been vaccinated; 1 had received 1 Salk vaccine injection, 1 had received 2 injections, and 3 had received 3 injections. Type 1 poliomyelitis virus was isolated with the aid of cell cultures at the Queen's Hospital tissue culture laboratory in Honolulu from the stools of all 13 patients. The clinical diagnosis of poliomyelitis was thus confirmed by isolation of the virus.

Cerebrospinal Fluid Neuraminic Acid Deficiency in Schizophrenia. S. Bogoch. A. M. A. Arch. Neurol. & Psychiat. 80:221-227 (Aug.) 1958 [Chicago].

Neuraminic acid is a normal constituent of the gray matter of the brain, in which it occurs in combination with carbohydrate and lipid substances in the form of a macromolecular brain ganglioside. The authors studied the presence and the concentration of neuraminic acid in the cerebrospinal fluid obtained in routine diagnostic and anesthetic lumbar punctures from 195 patients, including 29, between the ages of 20 and 63 years, with schizophrenia, 19 adult mental patients without schizophrenia, and 147 patients in a general hospital. Seventy-two of the 147 patients were children less than 7 years of age, 29 were children between the ages of 7 and 15 years, and 46 were adults. The method employed for the determination of neuraminic acid in the cerebrospinal fluid obtained from these patients is described, with the precautions to be observed. The mean neuraminic acid content of the cerebrospinal fluid obtained from patients with schizophrenia was considerably below that obtained from adults without schizophrenia and comparable only to values found in some children less than 7 years of age.

The presence of neuraminic acid in the cerebrospinal fluid, its association with the proteins of this fluid, and the observed variations in concentration suggest that there may be, in addition to the classical concept of a fixed-brain barrier function of brain ganglioside, a circulating component associated with antibody functions. The tendency for the concentration of neuraminic acid in the cerebrospinal fluid to increase with age in man suggests that this substance may be involved in maturation processes in the nervous system. The failure of chemical maturation shown by the schizophrenic patients would correlate meaningfully with clinical evidence showing a failure in psychological maturation. Thus, if the function of the barrier-antibody system is the maintenance of a selective environment for the brain, then the failure of this system could account for the disorganization which is manifest in the psychotic state. The possession of an inadequately developed barrier-antibody system would represent a specific vulnerability to psychosis. In addition to experiments designed to test barrier functions in patients, it will be of some interest to determine the effect of the administration of neuraminic acid itself and of neuraminic-acid-containing substances on psychotic patients.

GYNECOLOGY & OBSTETRICS

Early Diagnosis of Tumors with Particular Reference to Carcinoma of the Uterus. A. P. M. Cappa. Minerva med. 49:2200-2219 (June 2) 1958 (In Italian) [Turin, Italy].

Vaginal and cervical smears for the purpose of detecting carcinoma of the cervix were taken routinely on 712 women, who were employed in 2 factories. Smears were stained by the methods of Papanicolaou, Feulgen, and Unna-Pappenheim. Cytological examination was followed by karyological, and the latter by circular biopsy if the repeated findings of the immediately preceding method were suspicious or positive. Circular biopsy, which was done on 51 women, confirmed carcinoma of the cervix in 20 women and left 3 suspicious cases unresolved. Intraepithelial carcinoma was present in 6 patients, early invasive carcinoma in 4 and invasive carcinoma in 10. It would have not been possible to detect carcinoma in 8 patients on the basis of the clinical findings alone. Positive findings by cytological and karyological methods were subsequently reversed by histological method, which thus gave negative response for carcinoma in 31 patients. However, negative findings by cytological and karyological methods were subsequently reversed by histological method, which gave positive interpretation for carcinoma in 2 patients. The average age of the patients with preinvasive and early invasive carcinoma was 37.9 years and that of the patients with invasive carcinoma was 49.8 years.

PEDIATRICS

Is Interstitial Plasma-Cell Pneumonia Caused by One of the Adenoviruses? O. Vivell and G. Lips. Ztschr. Kinderh. 81:181-182 (No. 2) 1958 (In German) [Berlin].

Morphologically identical changes in the form of inclusion bodies were observed in the pharyngeal epithelium in patients with "colds," presumably caused by adenoviruses, and in young infants with interstitial plasma-cell pneumonia. It was suggested that there might be an etiological connection between these 2 diseases. A common complement-fixation antigen is one of several characteristics of the adenoviruses. Since a complement-fixation test was available also for interstitial infantile pneumonia, the authors investigated whether the cause of interstitial plasma-cell pneumonia in infants might be related to the adenoviruses. They did not find antibodies against adenoviruses in 17 infants with interstitial plasma-cell pneumonia, who had high complement-fixation titers against a pulmonary antigen from a fatal case of interstitial pneumonia. Only 3 of 23 patients, with antibody titers in the adenovirus complement-fixation test, had a positive complement-fixation test also for interstitial plasma-cell pneumonia. Of 29 children in a children's home in which interstitial pneumonia was endemic, 7 had positive reactions to interstitial pneumonia and 8 to adenoviruses. Only one child had positive reactions to both. The authors conclude that the cause of interstitiial plasma-cell pneumonia in infants does not belong to the group of adenoviruses.

Cardiac Infarction in a Fetus. D. Schuler. Arch. franç. pédiat. 15:647-652 (No. 5) 1958 (In French) [Paris].

The author reports the case of a hemorrhagic infarct of the myocardium in a fetus. The mother was in labor for 3 hours when admitted to the obstetric clinic of the University in Budapest, Hungary. She had hypertension, edema, and albuminuria. Examination revealed 2 fetuses, one in vertex presentation and the other in transverse presentation. Intrauterine death had occurred in the latter. The living fetus was delivered spontaneously. Ten minutes later an artificial rupture of the bag of the dead fetus was carried out, a podalic version was done, the fetus was extracted, and autopsy was performed. The body of the dead fetus was covered by a sebaceous coat. Punctiform hemorrhages were observed at the level of the portion of the pleura lining the upper lobe of the left lung. The heart was of grayish-red color and was somewhat flaccid. At the anterior surface of the left ventricle and encroaching on about half of its posterior surface, there was a definitely demarcated area of more firm consistency and dark red color, which projected by a few millimeters into the anterior surface of the right ventricle. A similar area formed a margin at the anterior border of the interventricular septum. The same discoloration also was observed at the apex of the heart, and it continued toward the base of the heart, ending at a distance of about 1 cm. on the side of the atrioventricular groove. These changes were perceptible throughout the entire thickness of the myocardium, with the exception of some uninvolved areas at the level of the left ventricle and of a subendocardial layer. Some punctiform hemorrhages located under the epicardium were observed in the right ventricle and on the posterior surface of the left ventricle. A hemorrhage, the size of a finger pad, was observed adjacent to the atrioventricular branch of the left coronary artery, in the posterior portion of the left ventricle and next to it. There were no other abnormal alterations of the heart; the coronary arteries particularly were normal. A hemorrhage, the size of an infant's fist, was observed under the dura mater at the level of the occipital and temporal lobes. There was a rupture of the vena cerebri magna (vena galeni) and a tear in the dura mater covering the left portion of the cerebellum. These findings suggested that the myocardial infarction was the result of a coronary spasm, which itself was elicited by trauma of the central nervous system and by toxemia.

Staphylococcus Empyema in Children. C. C. J. Sia and S. C. Brainard. Hawaii M. J. 17:339-344 (March-April) 1958 [Honolulu].

The authors report on 8 children, between the ages of 3 weeks and 2 years, who were admitted to the Kauikeolani Children's Hospital in Honolulu for empyema. Staphylococcus pyogenes var. aureus was isolated from the pleural fluid of these patients. Most of them had a history of infection, such as measles or upper respiratory disease, for which they had been given penicillin and broad-spectrum antibiotics. A few days later there was usually a sudden spike in fever, with dyspnea, and the patients appeared toxic; cyanosis, dyspnea, and shock were present on admission of the 3-week-old patient. All the patients were severely ill on admission and had grunting respirations, poor color, and temperatures usually above 102 F (39 C). Chest findings were those of a consolidating process involving one or more lobes of the lungs, with dulness and diminished breath sounds. Paralytic ileus was a common finding after hospitalization. Leukocytosis varied from 17,000 to 35,000 leukocytes per cubic millimeter, with a "shift to the left" in all the patients.

Medical treatment consisted of administration of erythromycin, chloramphenicol, novobiocin, and large doses of aqueous penicillin. Combinations of the 4 drugs were generally selected. Oxygen and intravenously administered fluids were given. Gastric decompression was required in the youngest infant to combat the paralytic ileus. General supportive measures included blood transfusion, antipyretic therapy, and positioning the patient on the involved side. Needle aspirations of the lung were done from 1 to 5 times. The amount of fluid removed varied from a few to 70 cc. Closed drainage was performed in 3 patients, and open rib resection and drainage in 2. The 3-week-old infant had a fulminating course and died. The other 7 patients recovered completely, although complications, such as bronchopleural fistula with pyopneumothorax/ and encapsulated pulmonary abscess, occurred. Hospitalization varied from 17 to 30 days.

Early diagnostic pleural taps and intercostal tube drainage are recommended. An attempt should be made to follow the important principles in the treatment of empyema, with early control of infection, evacuation of the pleural space, and reexpansion of the lung. Frequent chest roentgenograms offer an excellent guide to therapy. Chloramphenicol, erythromycin, and novobiocin are the most effective antibiotics at the present time. With a combined medical and surgical approach, one may hope to have a low mortality and morbidity.

Investigations on the Etiology of Plasma-Cell Pneumonia in Infants. L. Moser. Ztschr. Kinderh. 81: 152-157 (No. 2) 1958 (In German) [Berlin].

The author attempted to isolate the causal factor of interstitial plasma-cell pneumonia in infants by means of tissue culture techniques. Lungs of 12-to-14-day-old chick embryos served as the primary culture medium. The tissue cultures revealed intracellular processes that resembled the nuclei of thrombocytes or of pneumocystis carinii. Observation under the fluorescence microscope revealed that these forms were living cells or parts of cells. It is highly probable that these forms are not the cause of interstitial plasma-cell pneumonia, but rather they are autogenous cell products which, like thrombocytes under certain conditions, play a part in the defense mechanism. In this connection the author mentions reduced thrombocyte counts in rats with vitamin A deficiency and profuse formation of thrombocytes in the endothelial cells of the subcutaneous lymph nodes after the administration of large doses of cod liver oil. Review of the literature revealed that some investigators had called attention to the fact that large doses of vitamins had been given before interstitial plasma-cell pneumonia became evident.

The pneumocystis carinii-like forms are not characteristic for one definite disease entity but have been found in various species of animals and in human cadavers. That interstitial plasma-cell pneumonia is an infectious disease is proved by the fact that it can be transmitted, by the complement-fixation reaction and by the isolation of the virus. The successful tissue culture of the virus and its identification by the complement-fixation and neutralization tests is to be described in a later report, but a photomicrograph in a 1200-fold magnification is reproduced. It is suggested that the virus is a large one and seems to belong to the group that includes the viruses of psittacosis and pneumonitis.

DERMATOLOGY

Evaluation of the Clinical and Serological State of 416 Well Treated Neurosyphilitics After Long Term Observation. F. Kalz and A. Scott. Acta dermat.-venereol. 38:155-167 (No. 2) 1958 (In English) [Stockholm].

The authors report on 490 outpatients with neurosyphilis who were treated at the syphilis clinic of the Royal Victoria Hospital in Montreal, Canada, between 1936 and 1949. Only 74 patients (16%) were lost to observation. Of the remaining 416 patients who were followed for a period ranging from 7 to 20 years, 30 had general paresis, 47 taboparesis, 63 tabes dorsalis, 86 meningovascular neurosyphilis, 156 asymptomatic neurosyphilis, and 34 congenital neurosyphilis. In the first years of the study most of the patients received fever therapy followed by, or combined with, the administration of pentavalent or trivalent arsenic compounds. For a period of 2 years artificial fever therapy in conjunction with the administration of penicillin was used. In the last 10 years, penicillin alone in doses of 10 million units was given routinely, usually 2 or 3 weekly injections of 900,000 units, for a period of 3 to 5 weeks. An attempt was made to assess the prognosis of these well-treated patients with regard to the normalization of the spinal fluid changes, the alteration of the clinical symptoms throughout the observation time, their working capacity, social integration, the causes of death, and their life expectancy.

The average time for normalization of the spinal fluid was 13 years; a positive reaction of the blood to the Wassermann test in low titer persisted in 71 patients and in about 5% the total protein level remained elevated in the absence of any signs of cerebrospinal fluid activity or clinical progression. In all but 3 patients the acute inflammatory phase responded to therapy; 3 patients required retreatment with very large doses of penicillin. The final clinical outcome was satisfactory in 40 (52%) of 77 patients with general paralysis of the insane and taboparesis. The outcome was unsatisfactory in 17 patients (20%), while the remainder showed an initially satisfactory response to treatment, on which psychological disturbances and eventual deterioration were later superimposed. The treatment results in the 110 patients with tabetic symptoms were not satisfactory; while progress of the disease was arrested and the atactic symptoms improved in most of these patients, shooting pains persisted in most of them. The end-results of treatment in the group of patients with meningovascular neurosyphilis were very satisfactory, except in those in whom irreparable brain damage due to cerebral thrombosis had occurred. A considerable number of patients with asymptomatic neurosyphilis had unspecific symptoms including tiredness, loss of appetite, insomnia, and occasional headaches, which could have been easily misinterpreted as neurotic complaints; these symptoms disappeared quickly and permanently after therapy. All patients in this group responded favorably to treatment; in none of them did progression of the disease occur.

Sixty patients died during the follow-up period, but death was attributable to the neurosyphilis in 2 patients only; cardiovascular syphilis led to death in 2 other patients. In the remaining 56 patients, the cause of death was unrelated to the syphilitic infection. Malignancy was the most frequent cause of death, occurring in 18 patients (32%). The life expectancy of the patients with neurosyphilis was not shortened, as compared with that of the general Canadian population. This unexpected finding, contrasting to many other reports, may be explained by the following factors: 1. Severe cases were not included in this group of outpatients, since these patients were transferred directly to institutions. 2. General medical and social care was given to these patients.

UROLOGY

Urogenital Tuberculosis, Diagnosis and Therapy. E. Ljunggren. Nord. med. 59:897-902 (June 26) 1958 (In Swedish) [Stockholm].

For early diagnosis in renal tuberculosis, tubercle bacilli in the urine are looked for by the guinea-pig test and culture in all cases with extragenital tuberculosis. As tubercle bacilluria is usually accompanied by pyuria, only specimens of urine containing pus cells need to be sent for the guinea-pig test. Total and partial nephrectomy are now less commonly recommended because of the good results achieved in renal tuberculosis with chemotherapy. Indications for removal of a tuberculous kidney are cement kidney, tuberculous pyonephrosis, and severely impaired function when there is, as a rule, advanced tuberculosis. The best results of chemotherapy of urogenital tuberculosis are attained with a triple-drug treatment (aminosalicylic acid, streptomycin, and isoniazid), always combined with sanatorium treatment. Triple-drug treatment is now the standard method of treatment. The importance of sanatorium treatment has not been lessened by chemotherapy, and it should last at least a year. In case of intolerance or resistance to one of the preparations, the author has continued with the other two preparations, sometimes adding Conteben. Reversion occurred in the 25 cases in which the triple-drug treatment was applied for at least a year, and the guinea-pig test has been negative after ended treatment. The duration of after-observation has averaged 6½ months; should the guinea-pig test become positive after long-continued chemotherapy, this would usually occur within the first months after ended treatment. Maintained recovery is looked for in the majority of the patients treated. Chemotherapeutics are bacteriostatics; the defense powers of the organism must conquer the invading bacilli, and there is no better method to support this process than sanatorium treatment. With sanatorium care the patient is also under constant control with regard to the toxicity of the agents employed. Furthermore, ureter strictures can occur during chemotherapy and destroy the result of the treatment unless there is timely surgical intervention.

Experiences with the Kolff Twin Coil Artificial Kidney. J. H. Holmes, O. G. Stonington, P. Van Schoonhoven, T. W. Richey and Y. Takeda. J. Urol. 80:102-109 (Aug.) 1958 [Baltimore].

The authors report on 93 dialyses performed with the Kolff twin-cell artificial kidney on 62 patients at the University of Colorado School of Medicine from August, 1956, to August, 1957. The oldest patient treated by dialysis was 84 years old, and the youngest was 3½. Of 22 patients with renal failure due to chronic renal disease, 11 died, and 11 were discharged with improvement. The average age of those who died was 42 years and of those who survived 35. Of 23 patients with acute renal failure, 13 died, and 10 survived. The average age of those who survived was 42 years and of those who died 47. Eight patients were dialyzed for acute renal failure due to toxins. Of these, 7 survived, and 1 died. Of 9 patients with barbiturate poisoning, 8 survived, and 1 died of respiratory failure. Dialysis produced prompt and excellent results in most of the patients. Two patients who were each dialyzed 3 times survived. Two patients were dialyzed 5 times, and in both of them the renal lesion at autopsy was considered irreversible. Multiple dialyses are clinically feasible, and there is no increased risk. The principal indications for dialysis are uremia, electrolyte and fluid imbalance, edema, hyperpotassemia, and intoxication with diffusible toxins. Hemodialysis has been lifesaving in many cases, but the procedure should be limited to major medical centers which have sufficient personnel and a large experience.

Atypical Acute Nephritis: Clinical Observations in Several Cases. E. Hansen. Ugesk. læger 120:908-913 (July 10) 1958 (In Danish) [Copenhagen].

The 7 cases of acute nephritis with rapid and benign course described, in 5 men and 2 women, aged from 22 to 52 years, were distinguished from the usual acute glomerulonephritis in that hematuria, edema, and hypertension were absent or slight, while the clinical picture was dominated by a marked but transient albuminuria, pronounced impairment of renal function of apparently the same type as seen in tubular nephropathy, and prolonged polyuria with hyposthenuria and isosthenuria. No relation to any preceding streptococcic infection could be established. The cases are thought to represent a special form of nephritis of unknown etiology. Attention is called to the similarity to the "epidemic nephropathy" reported in Norwegian and Swedish literature.

THERAPEUTICS

The Influence of Anticoagulant Therapy on the Occurrence of Cardiac Rupture and Hemopericardium Following Heart Infarction: I. A Study of 89 Cases of Hemopericardium (81 of Them Cardiac Rupture). S. Aarseth and H. F. Lange. Am. Heart J. 56:250-256 (Aug.) 1958 [St. Louis].

The present study is concerned with 89 (7.3%) cases of hemopericardium found at autopsy in a series of 1,303 patients who died of heart infarction. Of these 5 had hemopericardium without rupture, and 3 had rupture of the ascending aorta, while the remaining 81 cases had myocardial rupture. The 41 men were aged 41 to 86 years with a mean of 68.5 years, the 48 women ranging in age from 55 to 90 years with a mean age of 72.5 years. The greatest number of instances of hemopericardium with myocardial or aortic rupture were found in the 60-to-79-year age group, the males predominating in the under 60 group, and a greater number of females being present in the group past the age of 80. Twenty-nine patients had a history of previous angina pectoris, 3 had had previous infarctions, 46 had not had symptoms of angina pectoris, and in 8 cases adequate information was not obtained. Hypertension was not uncommon, 33 patients having systolic pressures in excess of 160 mm. Hg and 20 having diastolic pressures above 100 mm. Hg. Aortic stenosis was present in 6 patients, 1 of whom had mitral stenosis as well, syphilitic aortitis in 1, and inveterate syphilis in 1. Serologic tests carried out in 57 of the patients including the 2 mentioned above were negative in all instances. Seven patients (7.6%) had diabetes mellitus.

A study of height-weight ratios did not reveal any particular relation between overweight and cardiac rupture. Anticoagulant therapy was given 33 (37%) of the patients. Hemopericardium without rupture of the heart or aorta was restricted to the latter group, which also included 8 patients who had excessive anticoagulant effect shortly before death. The figures regarding the clinical duration of the infarct, i. e., the interval between infarction and rupture (death), are not considered reliable. More than half the cases died during the first 5 days and about 80% (73) died during the first 10 days, 22 of the 33 receiving anticoagulant therapy dying during a period from the fourth to the ninth day. The rupture was of the left ventricle in all of the 81 cases, and in most instances was near the apex, involving the anterior wall in 43 instances and the posterior wall in 29. The size of the rupture varied from an opening barely admitting a thin probe to tears up to 4 cm. in length. Coronary lesions were demonstrated in several instances as was cardiac hypertrophy. The authors conclude that a fatal hemopericardium may occasionally be caused by anticoagulant therapy in myocardial infarction even in patients within a safe range of anticoagulant effect. A number of cases with excessive anticoagulant effect sustained cardiac rupture, and in these cases an overdose of anticoagulant or excessive anticoagulant effect seems to have precipitated a fatal cardiac rupture.

The Influence of Anticoagulant Therapy on the Occurrence of Cardiac Rupture and Hemopericardium Following Heart Infarction: II. A Controlled Study of a Selected Treated Group Based on 1,044 Autopsies. H. F. Lange and S. Aarseth. Am. Heart. J. 56:257-263 (Aug.) 1958 [St. Louis].

Recent observations indicate that anticoagulant therapy in patients with acute myocardial infarction increases the risk of death from rupture or hemopericardium. The primary series which is comprised of a total of 1,044 autopsied cases included patients receiving anticoagulant therapy as well as patients receiving no anticoagulant therapy. The following categories of cases were excluded in both the treated and untreated groups: (1) patients in whom the infarct had not been diagnosed during life, and who consequently had received no anticoagulant; (2) patients showing old infarction; (3)

patients in whom the exact time of infarction was not definitely known; and (4) patients who died before reaching the therapeutic range of anticoagulant effect. The treated group consisted of 40 men and 29 women, and the untreated group (control) of 38 men and 34 women. The average age for men was 65.3 years in the treated group, and 66.1 in the control group, while the average age for women was 74.8 and 75.5 years respectively. None of the women were less than 60 years of age, the male-female age difference being 9.5 years in the treated group and 9.4 years in the control group. Seventy per cent of the deaths in the treated group and 64% of the deaths in the control group occurred within 20 days after infarction. Although 50% of the patients in the control group died within 5 to 9 days there was a greater variation in the length of survival in the treated group, which was ascribed to the routine discontinuance of anticoagulant therapy after 4 weeks and was attended by an immediate rise in temperature and subsequent death in a number of patients. There was only 1 instance of hemopericardium without rupture. Hemorrhagic fluid with or without fibrin deposits was found in 10 patients in the treated group (14.5%), and in 4 patients in the control group (5.5%), while serous fluid was found in 8 patients (11.6%) of the treated group and in 18 patients (25%) of control group. Normal pericardium was noted in 22 (32%) of the treated group and in 31 (43%) of the control group. Intracardiac mural thrombi were found less frequently in the treated group (6%) than in the control group (11%). The incidence of hemopericardium in the treated group was almost twice as large (15 of 69 patients) as in the control group (8 of 72 patients), permitting the conclusion that anticoagulant therapy may contribute to the weakening of the affected area of the myocardium with consequent rupture.

Therapy of Choriocarcinoma and Related Trophoblastic Tumors with Folic Acid and Purine Antagonists. Min Chui Li, R. Hertz and D. M. Bergenstal. New England J. Med. 259:66-74 (July 10) 1958 [Boston].

The authors report their experience with the treatment of 6 men and 5 women suffering from choriocarcinoma or related trophoblastic disease, the diagnosis of which was based on unequivocal histological evidence. The patients, all of whom were hospitalized throughout all periods of active therapy, received either orally or intramuscularly a daily dose for 5 consecutive days of 15 to 25 mg. of methotrexate; 6-mercaptopurine was administered orally in daily doses of 600 to 800 mg. for 5 days. No further therapy was given until all signs of induced toxicity had completely subsided, subsequent courses of 5 days' duration being administered with similar precautions. The most sensitive criterion of therapeutic effort was found to be the level of urinary chorionic gonadotropin. In all 6 women the repeated courses of methotrexate administration were followed by unequivocal evidence of tumor regression and a concomitant drop in gonadotropin excretion. The 5 male patients failed to show any distinct response to methotrexate or 6-mercaptopurine, their clinical status remaining unimproved and x-ray examination revealing no decisive retrogression of the extensive metastases. Only minor fluctuations in the gonadotropin titers were noted, the disease process running an unrelenting course with 4 of the 5 men dying with characteristic manifestations of the primary disease. Procedures aimed at rendering the internal environment of the male host more comparable to that of the female failed to alter the tumor response.

Pharmacology and Clinical Use of Pempidine in the Treatment of Hypertension. M. Harington, P. Kincaid-Smith and M. D. Milne. Lancet 2:6-11 (July 5) 1958 [London].

The authors studied a new drug of the amine, ganglion-blocking type. This drug is 1:2:2:6:6-pentamethyl piperidine. It is known under the common name pempidine, and the name "perolysen" has been proposed. Pempidine is a tertiary amine, a simple derivative of piperidine of empirical formula $C_{10}H_{21}N$. For experimental studies on pempidine the same method was used as for mecamylamine. Thirty-two hypertensive patients without renal failure were given pempidine, and of these 27 received continuous treatment. Observations were made on 2 patients with hypertension complicated by moderate uremia. Twenty-one patients were studied after a single intravenous dose of pempidine. In all except 2 cases the drug was given in a dose of 5 mg. of hydrochloride (4 mg. base). Single oral doses of 5 to 20 mg. of bitartrate (2.5-10 mg. pempidine base) were given to 9 patients. A hypotensive effect was usually observed within an hour after an oral dose. The duration of hypotensive action was 6 to 7 hours after the dose, although the maximal effect lasted for only 1 to 3 hours. In 2 cases after an intravenous dose, and in 3 after a large oral dose, there was a severe fall in blood pressure, and the effect of the drug was prolonged for as long as 24 to 36 hours. One of these patients had severe oliguria which undoubtedly interfered with excretion of the drug. In 24 of the 27 patients who received continuous treatment with pempidine treatment had been continued to the time of this report, for from 2 to 20 weeks (average 10 weeks).

Pempidine is similar in many respects to mecamylamine. Both drugs are rapidly and completely absorbed from the intestine. They readily cross cell memebranes and are concentrated within tissues by intracellular protein-binding, especially to nucleoproteins. The excretion of both drugs is influenced by urinary pH, clearance being decreased in alkaline and slightly increased in acid urine. Several differences make pempidine a potentially more useful drug than mecamylamine. While 25% of mecamylamine is bound to plasma-protein, pempidine is not so bound, and therefore all the drug in plasma is pharmacologically active. Pempidine is excreted more rapidly than mecamylamine. This is advantageous because toxic accumulation of the drug in the body is less likely. In addition, the dosage of pempidine can safely be increased to effective levels more rapidly than that of mecamylamine. Excretion of pempidine is less affected by variation in acid-base balance than that of mecamylamine. The difference between an effective and a toxic concentration is probably greater in the case of pempidine. A steady hypotensive effect can be maintained throughout the day when pempidine is given orally at 5-hour intervals. The dosage of pempidine can be quickly increased, owing to the rapid elimination of the drug.

ANESTHESIA

Single Lung Anesthesia in Surgery. I. S. Zhorov. Khirurgiya 34:11-20 (No. 6) 1958 (In Russian) [Moscow].

Indications for single lung anesthesia are limited. It is employed mainly in total removal of the lung and occasionally in removal of 1 or 2 lobes. Single lung anesthesia has certain advantages over endotracheal anesthesia during operations connected with purulent lung diseases, since it provides the best isolation of the diseased lung from the healthy one and prevents penetration of infected and noninfected masses into the latter. Single lung anesthesia provides sufficient oxygen saturation of the blood. This anesthesia is induced by the block of the main bronchus of the diseased (operated on) lung and by endotracheal anesthesia or by introduction of a tube into the bronchus of the unaffected lung for endobronchial anesthesia. Single lung anesthesia is more complicated than endotracheal, since at times it requires roentgenologic examination besides the physical one. It may be carried out by any experienced anesthesiologist.

Minor Laryngeal Sequelae of Endotracheal Intubation. B. Wolfson. Brit. J. Anaesth. 30:326-332 (July) 1958 [Altrincham, England].

In an attempt to assess the number of minor laryngeal sequelae produced by intubation in the everyday anesthetic practice of a fairly large hospital, the author interviewed between the 2nd and the 8th postoperative day 521 patients who had been operated on with the aid of endotracheal anesthesia at the Western Infirmary in Glasgow, Scotland. The complaints elicited by the interrogation were as follows: Eighty-three patients (15.9%) had a slight sore throat; 13 (2.5%) had a severe sore throat; 17 (3.3%) were hoarse; 2 (0.4%) lost their voices temporarily; and 4 (0.8%) had sore throats and were also hoarse. The complications lasted from 3 hours to 7 days. Fifty-four patients (10.3%) had complications lasting 2 or more days, and 61 patients (11%) had complications lasting less than 2 days. The incidence was affected only by the sex of the patient, being much greater in the female patients. There was a greater incidence also in patients in the prone position than in the supine, lithotomy, Trendelenburg, or lateral positions, but the figures were not statistically significant.

PUBLIC HEALTH

Killed Antituberculous Vaccine—V. D. S. Vaccine (Diffusing Vaccine Salvioli): V. Clinical, Roentgenologic, and Hematological State (in 1956) of Newborn Infants Vaccinated (in 1954-1955) with V. D. S. Who Were Exposed to Tuberculous Infection in the Family. F. Grandi and M. Malossi. Minerva Med. 49:2545-2566 (June 27) 1958 (In Italian) [Turin, Italy].

Forty-three infants, most of whom belonged to families in which at least one member had tuberculous disease, were born at a community maternity center and were vaccinated at birth with diffusing vaccine Salvioli (V. D. S.) during the period 1954-1955. A year later 40 of the infants were examined for the possible presence of tuberculous disease, but none had such disease as established by clinical and roentgenologic examinations. Most of the infants presented positive reaction to Wolmer's tuberculin test. The general state of health was satisfactory, although the infants came from poor homes and most of them were bottle-fed. The erythrocyte sedimentation rate tended, on the average, to reach the upper physiological limits. The white blood cell count varied between 9,200 and 24,800 per cubic millimeter, which values exceed the mean physiological value of 10,000 per cubic millimeter according to Lavergne's formula. The leukocytic formula (differential count) did not deviate significantly from the normal values, with the exception of a slight increase in the eosinophil count. The Velez index, which has a high diagnostic value for excluding tuberculous disease where it is not actually present, was negative in all the children. The Arneth-Cooke formula also presented nonpathological values. Vaccination of newborn infants with the killed antituberculous vaccine, V. D. S., has thus been shown to be an innocuous procedure, even if administered to feeble infants living in an environment where they are highly exposed to Mycobacterium tuberculosis. It is not necessary to put the children in preallergic isolation.

Killed Antituberculous Vaccine—V. D. S. Vaccine (Diffusing Vaccine Salvioli): VI. Reexamination (in 1957) a Year After Initial Examination (in 1956) of a Group of Infants Who Were Vaccinated at Birth with V. D. S. and Exposed to Tuberculous Infection in the Family. F. Grandi and M. Malossi. Minerva med. 49:2566-2575 (June 27) 1958 (In Italian) [Turin, Italy].

In 1957 a second clinical and roentgenologic inspection was made a year after the initial study in a group of 30 infants who were vaccinated at birth with diffusing vaccine Salvioli (V. D. S.). Tuberculous disease was known to exist in the homes of 20 infants and was presumed to be present in the homes of the others. The leukocytic formula (differential count), Arneth-Cooke formula, Velez index, and Wolmer tuberculin test were investigated in all the infants. All the children but one were free of the clinical symptoms of tuberculous disease. Body weight had increased in 27 infants. Sensitivity to tuberculin, as evidenced by the reaction to the Wolmer test, increased in 8 infants, remained unchanged in 8, and decreased in 13, as compared with the reaction to the test in 1956. The Velez index, which was negative in all but one infant, was, on the average, more negative than the year before.

The primary phase of a tuberculous process of exudative type was established in the one infant who was ill. The disease, which had taken a mild form, was easily controlled and cured with chemotherapy, since there were few local symptoms and the absence of such general symptoms as fever affected the child's well-being and body weight. The case demonstrated the efficacy of the V. D. S. vaccine in mobilizing antibodies for attacking the etiological agent of tuberculosis in infants. The infant was again examined a year after remission of the disease and was found to be healthy. This second examination once again demonstrated the effectiveness of the V. D. S. vaccine in protecting vaccinated infants against tuberculous disease during the first 2 or 3 years of life despite poor economic and hygienic conditions.

Field and Laboratory Studies on Equine Encephalitis. R. F. Feemster, R. E. Wheeler, J. B. Daniels and others. New England J. Med. 259:107-113 (July 17) 1958 [Boston].

Research activities have been carried out in the state of Massachusetts since 1938 to determine the possible reservoirs and vectors of the virus of equine encephalitis. At the time of the outbreak in horses and human beings in 1938 the only known laboratory vectors of the equine viruses were 8 species of mosquitoes belonging to the Aedes genus. In 1941 Hammon and co-workers isolated the western equine virus from free-living mosquitoes of the Culex genus, thus proving that transmission was not restricted to the Aedes genus. In 1943 the same group demonstrated that barnyard fowl could act as reservoirs of the St. Louis and the Western equine-types of encephalitis. In 1953 a total of 146 specimens of blood were obtained from birds shot in the vicinity of Hockomock swamp, which is located near the communities of Easton, West Bridgewater, Bridgewater, Raynham, Tauton, and Norton. In addition, blood specimens from 19 horses were collected. Of the latter group, 1 had antibodies for the eastern virus of equine encephalitis alone, 6 for the western virus alone, and 2 for both. A total of 105 (71.8%) of the 146 birds had no antibodies for the eastern virus, 8 (5.5%) not having been tested for such antibodies, and only the last bird shot in the study yielded the eastern virus by isolation. Twenty (13.7%) of the birds gave evidence of infection with the eastern virus alone, 2 (1.4%) with the western virus alone, and 13 (8.9%) with both.

Late in 1955, after 44 horses had become infected, 4 human cases of equine encephalitis were reported in Boston hospitals, 1 of which was fatal. Four pheasant farms had losses owing to the virus, and 2 pheasants, found ill in the field, yielded the eastern virus. Only 2 of the 356 persons living in close proximity to the Hockomock swamp, from whom blood specimens were taken in 1956, gave positive neutralization tests for the eastern virus, with indexes of 32 and 80 respectively. An additional survey revealed that, of a total of 537 persons with no history of encephalitis, 3 (0.7%) showed low titers of neutralizing antibodies, indicating that inapparent infections with the eastern equine virus in Massachusetts are so infrequent as to be of little significance. Another survey of 152 birds in 1956 revealed 55 birds with evidence of infection with the eastern virus, while 12 had been infected with both the St. Louis and the eastern equine viruses. The eastern virus was isolated from 4 birds; only 4 birds showed antibodies for the St. Louis virus alone. Of the 269 birds studied in the 1957 series, only 12 had antibodies for the eastern virus of equine encephalitis, 9 of them being crows. Four chickens out of 85 tested and 5 turkeys out of 66 tested showed antibodies for the eastern virus. It is of note that 7 out of 39 pigs tested had antibodies for this same virus of equine encephalitis. Culiseta melanura is the mosquito that has been indicated as the vector among birds, and perhaps as the vector from bird to man and horse, while wild birds appear to be the reservoir of the disease for both man and horse.

BOOK REVIEWS

Intestinal Obstruction. By Claude E. Welch, M.D., D.Sci., Clinical Associate in Surgery, Harvard Medical School, Boston. Cloth. $10.50. Pp. 376, with 135 illustrations, drawings by Muriel McLatchie Miller. Year Book Publishers, Inc., 200 E. Illinois St., Chicago, 1958.

From the mass of literature on intestinal obstruction and from his own experiences, the author has presented the salient facts about intestinal obstruction. This monograph is thus a ready reference for interns, residents, and surgeons who are responsible for the care of such patients. In the early chapters, the causative factors, lesions, and pathological physiology are reviewed as an introduction to the clinical management of patients with intestinal obstructions. In the discussion of the diagnosis of intestinal obstruction, it is wisely stated that "although the diagnosis can be made by x-ray, in 90% of the cases strict reliance on this method is unwise." Close cooperation between radiologist and surgeon is necessary to obtain the best result. Although the danger of giving barium to patients with intestinal obstruction is fully discussed, the author is not opposed to giving thin barium or sodium acetrizoate orally in order to locate the site of an obstruction of the small intestine. Intestinal intubation and the general problem of replacement therapy are thoroughly discussed. Because of the danger of intestinal strangulation during prolonged unsuccessful intestinal intubation, the author advises early operation in simple types of obstruction. The major part of the book is devoted to the management of the various types of intestinal obstruction. Each type is discussed from the standpoint of etiology, symptoms, diagnosis, and treatment. The author's surgical technique is well and profusely illustrated. The many causes of postoperative obstruction, diagnosis, and their treatment are reviewed. The book has a provocative chapter on intestinal obstruction and peritonitis. The author is inclined to operate on patients with obstruction in the presence of peritonitis when the generally accepted conservative therapy seems to fail. He supports his views with the excellent results in a small series of patients on whom he carried out the lysis of adhesions, intestinal resection and anastomosis, and enterocolostomy in the presence of peritonitis. This monograph is highly recommended to all medical personnel responsible for the care of patients with acute intestinal obstruction.

Law and Ethics for Doctors, with a Section on General Practice in the National Health Service. By Stephen J. Hadfield, M.A., M.B., B.Chir. With contributed sections on negligence by W. G. Hawkins and the late W. Mair. Superannuation by L. S. Potter, M.D., Ch.B. Income tax by W. Donald, C.A. Cloth. 42 shillings. Pp. 399. Eyre & Spottiswoode (Publishers) Ltd., 15 Bedford St., Strand, London, W. C. 2, England, 1958.

This book describes rather fully many of the obligations imposed on the physicians of England by the National Health Service and related acts. It is clearly a handbook to be used by the physician in England who practices his profession in a somewhat less than free climate of medical enterprise. Of general interest, however, is the description of the Privy Council, the General Medical Council, and the Medical Register. Ethical principles are discussed briefly. For members of the medical profession in the United States this book has little practical value. It is, however, a revealing collection of miscellaneous information which indicates all too clearly the regimentation of medical practice under the National Health Service.

The American Academy of Orthopædic Surgeons Instructional Course Lectures. Volume XIV. Editor: R. Beverly Raney, M.D. Cloth. Pp. 388, with illustrations. J. W. Edwards, Ann Arbor, Mich., 1957.

This new volume presents some of the lectures that were given before the American Academy of Orthopædic Surgeons in February, 1957. It is another excellent book in their annual series. It will be of value as a teaching and reference book on the resident level, but it is perhaps too technical for the medical student. Its great value lies in the completeness with which one facet of a surgical problem is handled. This is particularly true in such articles as Congenital Dysplasia and Dislocation of the Hip in Infancy, Proximal Femoral Osteotomies, and Congenital Pseudoarthrosis of the Tibia. There is a wide range of coverage on conditions of the spine and the upper and lower extremities. Of special note are the articles on local manifestations of systemic diseases, or diseases involving the skeleton, which provide interest to the roentgenologist, the pediatrician, and the internist, as well as to the orthopedist. This volume should be read diligently by every young orthopedist intending to take either part of the specialty board examinations. It should be of value also to the older orthopedist, by keeping him abreast of modern trends in operative or orthopedic surgery. No original work or research is reported; the book is a record of the teachings presented at the annual meeting. The articles on

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

interpretation of pain are nebulous and inclined to give quotations from older authors too much and to show acceptance of their writings with sometimes an implication of finality. The bibliographies after each article are ample, and the authors cover the subjects succinctly and, as a rule, impartially.

Tumors of the Soft Somatic Tissues: A Clinical Treatise. By George T. Pack, M.D., LL.D., F.A.C.S. Associate Professor of Clinical Surgery, Cornell University Medical College, New York, and Irving M. Ariel, M.D., F.A.C.S., Associate Clinical Professor of Surgery, New York Medical College, New York. Cloth. $30. Pp. 820, with 652 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1958.

This comprehensive textbook discusses the clinical management of patients with soft somatic tumors in connective tissues, fat, smooth and striated muscle, fascia, synovia, blood and lymph vessels, and nerve tissues. Each tumor type is discussed, and features that differentiate benign from cancerous growths are presented. The monograph reflects the results of treatment in a group practice during 25 years. It contains six sections: (1) history, classification, incidence, hereditary and congenital occurrence, role of trauma and other etiologic factors, and cancerous evolution of a benign growth; (2) techniques of wide local excision and other details of amputation; (3) treatment of specific tumors and tumor-like or preneoplastic proliferations; (4) sarcomas of infants and children, their treatment and results; (5) the principles of therapy of these tumors in such locations as the neck, abdominal wall, buttocks, and retroperitoneum; and (6) therapeutic results and an analysis of the factors that influence prognosis. The chapters in each section document the subject material presented with a substantial bibliography. The book is well written and illustrated. It presents clearly a large amount of practical information on diagnosis and treatment, including the special techniques of surgery for the many tumors arising in the soft somatic tissues. This information is especially valuable to all surgeons, both in diagnosis and in surgical and radiation treatment. Pathologists also should find this book a good source for information about these tumors.

Pediatric Index: A Guide to Symptomatological Diagnosis and Current Management. By Edwin F. Patton, M.D. Cloth. $13.50. Pp. 639, C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1958.

This book presents an alphabetical listing of all pediatric conditions, normal and abnormal. It is similar to Davison's "Compleat Pediatrician" but more comprehensive. There is no arrangement in body systems or any discussion of disease entities other than the exhaustive listing and correlation of signs and symptoms aimed at assisting in the diagnosis and treatment of all manner of problems of childhood. The material is organized into three sections. The first and largest provides an exhaustive indexing of major signs and symptoms, broken down wherever possible into those found in the infant or the older age group. Minor corroborative or differentiating findings are included, and a suggestive diagnosis is offered. The second section lists abnormal conditions, each with exact information required for a definite diagnosis. Wherever appropriate, a list of conditions to be ruled out is given. The latest or best treatment is then outlined. The third section, dealing with special data and technique, is more meager, and one may wonder why the few techniques given were selected to the exclusion of others. The concise information on electrolyte and fluid adjustment, seizures, and antibiotics in this section is excellent. This book should be considered as a diagnostic reference textbook. The material on poisoning is particularly extensive, and the information on orthopedics goes beyond that found in most pediatric textbooks. Much space is devoted to febrile disorders. The well-differentiated headings, the adequate-sized type, and the multiple cross references facilitate the finding of information. This book is intended as an aid to physicians, experienced or inexperienced, in clarifying obscure pediatric diagnoses, preventing oversight of rare conditions, and providing a guide for treatment.

The Organization and Administration of Physical Education. By Edward F. Voltmer, and Arthur A. Esslinger. Third edition. Cloth. $5. Pp. 558. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1958.

The authors place the emphasis on the education in physical education. Exercise and health are important outcomes, but education for fitness, skill and understanding, and personality and character development is the primary goal. Effective organization and administration of the program facilitates the achievement of this objective. The book is based on a study of current problems in physical education. After delineating the place of physical education in education and outlining aims, the authors emphasize the need for well-defined administrative policies and the means of establishing these. They then show how such policies can be applied in the organization and conduct of the class program in physical education, the intramural sports program, and the program of interscholastic athletics. Equipment and facilities, tests and measurements, budget making and financing, public relations, legal liability, and working with staff members and student leaders are also discussed. Recognizing that school health education may be administered separately from physical education in many school organizations, the authors give it only brief coverage. References are relied on to provide details for those having dual responsibility or concern for school health education. Through extensive revision, the authors have made the material in this new edition more applicable for a wider audience, including teachers and leaders in service as well as those preparing for teaching and administration of physical education.

General Pathology Based on Lectures Delivered at the Sir William Dunn School of Pathology, University of Oxford. Edited by Sir Howard Florey, Professor of Pathology, University of Oxford, Oxford. Second edition. Cloth. $16. Pp. 932, with 344 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W. C. 2, England, 1958.

This book is based on a series of lectures in general pathology and bacteriology given to medical students after completion of their physiology and biochemistry courses and just preceding their clinical work. Stress is laid on the fundamental changes that take place in the body in response to injury. Present-day views about the nature of those changes are discussed. An effort is made to stimulate in the mind of the student an experimental outlook for clinical medicine and surgery. This second edition has been revised and rearranged, and additional chapters on thrombosis, metabolic changes after injury, atherosclerosis, and tumors have been added to make the book more complete. Fourteen authors, in addition to the editor, have contributed special chapters. The authors' aims have been well accomplished, and there is excellent coverage of all aspects of general pathology and bacteriology. The altered physiology in anatomic pathological changes is considered in detail. The historical approach is maintained throughout, and a good background is provided for each subject. Experimental evidence is given in many instances, and throughout the book are numerous excellent photographs and drawings, including color plates. The book is well bound, clearly printed, and easy to read. The European spelling of certain words is interesting but not a detraction. The wealth of detail presented may be more than is desired by many students, but it helps to give an interesting, well-rounded approach to the subject. This book can be recommended to medical students, especially those whose interests extend beyond their required courses in pathology.

A Text on Systemic Pathology. Volume 1. Edited by Otto Saphir, M.D., Director, Department of Pathology, Michael Reese Hospital, Chicago. Cloth. $32. Pp. 865, with 818 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W. C. 1, England, 1958.

Pathologists and others often need information pertaining to a disease only to find that the available textbooks fail to go into sufficient detail or sketchily outline the correlation of the clinical findings with the pathologic process. This book, the first of two volumes, was written to fill this vacuum. It takes into account at all times the fact that a diseased organ or organ system is not a separate entity but part of the whole organism. In most instances, the description of a pathological entity begins with the first signs and symptoms, continues through the gross, microscopic, and statistical data, and includes postoperative complications. In addition to the editor, contributors include Maurice Lev, Jay J. Gold, and Ira Gore. The excellent continuity makes for easy reading. The material is presented in a manner which makes the book equally valuable to the pathologist and the nonpathologist and represents the authors' first-hand experience with the subjects discussed, including the findings in a number of diseases which they have studied extensively. The literature has been critically evaluated, and an attempt has been made to eliminate some time-honored opinions which do not stand the test of more recent experience. The photographs are excellent. This book would be a valuable addition to the library of any physician.

Advances in Electrocardiography. Edited by Charles E. Kossmann, B.S., M.D., Med.Sc.D., Associate Professor of Medicine, New York University College of Medicine, New York. Cloth. $9.75. Pp. 280, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W. C. 1, England, 1958.

This monograph deals with the fundamental advances in electrocardiography made in the period 1946-1956. The editor is assisted by five contributors. The subject matter is discussed under four categories: source of potential, conducting medium, spread of excitation, and recovery and rhythms. Much of the material consists of biochemical, biophysical, and mathematical concepts which form the bases for modern clinical electrocardiography. This portion is written in an interesting manner, is well documented with diagrams and illustrations, and of necessity is not light reading. Other portions deal with fundamental bases of practical electrocardiography and are magnificently presented and illustrated. Of particular note in this latter category are the chapters on intraventricular conduction and electrocardiographic interpretation in congenital heart disease. The purpose of the monograph is to present the most significant advances in the fundamental sciences applied to electrocardiography for the clinician and not to present another textbook on interpretation. The authors have succeeded in their purpose and have fulfilled a great need of the clinician in collecting and correlating the important experimental work from the mountainous mass of published data. This monograph should be in every internist's library.

QUESTIONS AND ANSWERS

ETIOLOGY OF MENTAL DEFICIENCY

To the Editor:—*Please give a summary of the present concept of the relative importance of the various etiological factors in mental deficiency of school-aged children. What is the importance of genetic factors in cases not associated with cerebral palsy?*
Lawrence M. Herman, M.D.
Monterey Park, Calif.

Answer.—It is, perhaps, still helpful to think of the causes of mental deficiency as falling into roughly two large groups—those determined largely by genetic or endogenous factors and those due to exogenous factors related to the environment and its modification during intrauterine or postnatal life. From a clinical standpoint, by far the most types fall into the exogenous group. At the present time this is also the group about which medicine can do much in the way of prevention. Attention to such prenatal factors as infection (via German measles), isoimmunization (Rh factor), and toxemias of pregnancy or pelvic irradiation is most important in prevention. Any perinatal factor leading to hypoxia or intracranial hemorrhage and postnatal factors such as encephalitis (primary or allergic), such toxic substances as lead or drug ingestion, severe emotional deprivation in infancy, and severe repeated or prolonged convulsions are factors that physicians can also do much to control or modify. Genetic factors can be thought of from a clinical point of view as due to single recessive genes or to single dominant genes. The clinical pictures in the former group are usually easily recognized, often because the defect is sharply segregated to a family group. Examples of these conditions would be phenylketonuria and galactosuria, both of which can now be detected in infancy, and much damage to the brain can be prevented by appropriate treatment. Other clinical entities of this group are amaurotic idiocies (Tay Sach group) and lipochondrodystrophy (gargoylism), not modifiable at present by treatment. The clinical entities due to single dominant genes are not always so easily identified because of the frequent occurrence of atypical or incomplete form. Tuberous sclerosis and certain of the dysostoses are examples of this group. Many children who are thought to be mentally retarded because of an inability to cope with school work turn out to be children who are educationally handicapped by various forms of brain damage in the areas concerned with the use of symbols. Careful examination by an experienced neurologist, speech therapist, or child psychiatrist often reveals mixed forms of aphasia, agnosia, and apraxia. The importance of recognizing these clinical conditions is that remedial help can be obtained, usually from a skilled speech therapist. These children are not really mentally retarded, but they are educationally retarded because of their great handicaps in learning via the usual symbolic tools. The IQ as a measure of intellectual potential can vary widely in an individual's lifetime, and a single measurement should not be taken as a complete diagnosis—a practice which is unfortunately rather widespread. Every effort should be made to make a diagnosis of retardation based on etiology, i. e., a medical diagnosis.

MUSCULAR DYSTROPHY

To the Editor:—*An 8-year-old boy who is mentally deficient has developed muscular dystrophy of the pseudohypertrophic type. This disease developed insidiously after a mild case of poliomyelitis in 1955. His history is noncontributory except for a cerebral concussion, in February, 1956, and a large hiatus hernia found at birth. Norethandrolone used empirically in moderate doses apparently increases muscle tone and energy in this child. Please give information concerning the use of this or any other drug helpful in the treatment of this disease. Have any cases of muscular dystrophy in any way correlated with severe head injuries or poliomyelitis been reported?*
George M. Wolverton, M.D., Clarksville, Ind.

Answer.—The child referred to in this question certainly has an unusual complication or collection of neurological conditions—mental deficiency, muscular dystrophy, cerebellar concussion, and poliomyelitis. One certainly must wonder about diagnosis in this case. There is no evidence that muscular dystrophy can in any way be correlated with severe head injuries or that it may develop after poliomyelitis. Were it not for the reported pseudohypertrophy, one would wonder whether his weakness might not be a poliomyelitic residual. No drugs of proved value in muscular dystrophy are available. Vitamins and amino acids have been reported to be of therapeutic value, but controlled studies have failed to confirm this. Norethandrolone should not be given for any prolonged period of time, especially in prepuberal children.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ITCHING OF THE TONGUE

To the Editor:—*A 9-year-old boy complains of his tongue itching. It is not sore or tender, but he takes his fingers to scratch it and it annoys him greatly. This has occurred on and off for three years. It may last for days at a time, or he may be free of the itch for months; it has occurred in any season. The tongue appears normal or has red raised bumps on it. Antihistamines did not help. Please give advice on this problem.*

M.D., Ohio.

Answer.—Itching of the tongue, if it can occur, must be extremely rare. In experiences over a period of 35 years with patients with allergies, including many who have had itching of the palate, this consultant has never encountered an instance of itching of the tongue. The failure to obtain any relief from antihistamines makes it likely that the complaint is not based on a histamine mediation mechanism. The explanation for this complaint is not obvious, but a trial of a tranquilizer, such as hydroxyzine hydrochloride in 10-mg. doses, is suggested.

LOSS OF SMELL AFTER HEAD INJURY

To the Editor:—*A head injury after an automobile accident has caused the loss of smell and a partial loss of taste. The patient is 6 months old. Will this be a permanent condition?*

J. W. Geiger, M.D., LaSalle, Ill.

Answer.—Loss of smell is not an unusual sequel of head injuries. Fracture of the cribriform plate of the ethmoid bone or hemorrhage at the base of the frontal lobes may cause tearing, crushing, or compressing of the olfactory filaments. With such anosomia there is also some loss of ability to perceive and recognize flavors which involve not only taste but also olfactory sensation. Such loss of smell and impairment of taste is often a permanent condition, especially if there has been tearing of the olfactory filaments, and, if there has been no return of function after six months, it may be presumed to be permanent.

ALOPECIA WITH MULTIPLE SCLEROSIS

To the Editor:—*A 39-year-old man, who has had multiple sclerosis for the past five years, complains of spotty loss of his beard. He does not have evidence of alopecia of the scalp. How often does this condition occur? Is it ever associated with multiple sclerosis?*

K. McMorrow, M.D., Detroit.

Answer.—The probable diagnosis of this condition is alopecia areata, a rather common entity. This may be confined to the bearded area. Its etiology is unknown, but psychosomatic influences seem to be important in its causation and in the precipitation of attacks. Alopecia of this type is nonspecific, but there is no reason why it could not occur in association with multiple sclerosis, since psychiatric complications are not unusual in that disease.

HIATUS HERNIA AND PAROXYSMAL TACHYCARDIA

To the Editor:—*Can hiatus hernia cause paroxysmal tachycardia for 31 years? A 52-year-old man has had paroxysmal attacks of supraventricular tachycardia for 31 years. He is sensitive to quinidine and has been responding well to lanatoside C. But, lately, he has been having very frequent attacks. A fairly thorough examination was done, and the only positive finding was a fairly big, sliding hiatus hernia.*

Antonio D. Talusan, M.D., Baltimore, Md.

Answer.—If the hiatus hernia was as big 31 years ago as it is now, then it is feasible that it may be the cause for the tachycardia, through stimulation of the thoracic sympathetic chain. If so, repair of the hernia would be advisable.

XANTHOMA DIABETICORUM

To the Editor:—*Please advise regarding treatment of xanthoma diabeticorum. A 53-year-old woman has numerous lesions on the posterior aspect of elbows, anterior aspect of both knees, and both feet. She is from a family of diabetic persons, but diabetes is controlled in her own case by therapy with 20 units of insulin daily.*

Paul Beddoe, M.D., Alhambra, Cal.

Answer.—Unfortunately there is no satisfactory treatment of xanthoma diabeticorum. The small lesions may sometimes be surgically excised. It is also true that in any of those cases where diabetes is present the treatment of the diabetes does not necessarily affect a resolution of the xanthomatous infiltrations.

BACTERIOPHAGE TREATMENT OF STAPHYLOCOCCIC INFECTIONS

To the Editor:—*What is the presently accepted opinion on bacteriophage treatment of localized or systemic staphylococcic infections?*

M.D., Florida.

Answer.—There have been extensive studies of bacteriophages. When these were discovered, there was great hope that they would serve therapeutically as an effective antibacterial weapon. This has never been realized. Today there is no practical method of employing bacteriophage therapy in the treatment of staphylococcic infections.

DROWNING

To the Editor:—*A local rescue squad has asked for information about the length of time which a drowning victim may remain submerged with hope of recovery. In other words, how long may a person be under water and still be resuscitated by pulmotor or other means? This question is asked to establish a policy for the use of the rescue squad in future drowning incidents.*

Tom Roe, M.D., Savannah, Tenn.

Answer.—The question is best answered in terms of probability. The following table gives percentages based on data supplied originally by A. Keith and quoted in the book "Adventures in Artificial Respiration" (Karpovich, New York, Association Press, 1953, pp. 258-261):

It seems to be useless to search for an account of the longest known submersion followed by successful resuscitation; samples of such accounts are given by Karpovich together with the reasons why they have little value. We know that the longest a person ever held his breath, as reported by Karpovich (p. 106), under the most favorable laboratory conditions (healthy young student, completely relaxed, having overbreathed to the point of alkalosis and having also inhaled oxygen) was 20 minutes and 5 seconds. An excited person who has worked up an oxygen debt by struggling before submersion would be at a disadvantage on every count; the only thing in his favor would be that cold water would induce some hypothermia and thus slow the process of asphyxiation.

Time Under Water, Min.	Probability of Survival, %	Cases, No.		
		Total	Saved	Lost
1- 5	95	247	234	13
6-10	81	110	89	21
11-15	54	26	14	12
15+	20	20	4	16

UNUSUAL MEDICAL QUESTIONS

The Questions and Answers Department of The Journal *receives many letters describing unusual cases. Some of these are too detailed to be printed in the regular Questions and Answers section. From time to time those that represent apparently new or different clinical syndromes or other interesting medical data will be presented in this section of* The Journal.—Ed.

WHEAL AT TUBERCULIN P. P. D. TEST SITE ASSOCIATED WITH ASTHMATIC ATTACK

To the Editor:—*In 1954, a 28-year-old man developed measles complicated by bronchial pneumonia; this was followed by a penicillin reaction, then erythema nodosum, and, two months later, bronchial asthma. Concurrent with an attack of asthma, a wheal often flares in the area of the forearm where he received an intradermal injection of tuberculin P. P. D. in 1950. Could there be any correlation between the wheal and the asthmatic attacks? Has anyone ever attempted desensitization with tuberculin?*

Harold N. Cooper, M.D., San Antonio, Texas.

Answer.—Since no familial history of allergy is given in this case, the origin of the allergy is more uncertain. It could be either truly allergenic or psychogenic. In the latter case, desensitization with histamine phosphate has been used by some physicians. If this treatment proves ineffective, then a true allergenic origin may be considered. Because of the location of residence, histoplasmin sensitization should be considered and, also, a possible sensitization to a host of other cross-reacting acid-fast organisms. Extensive skin testing with products of such organisms may give a clue as to the origin of the sensitization. Desensitization with tuberculin has been used in humans with suspected ophthalmic tuberculous allergy. However, the benefits versus the harm of desensitization have not so far been adequately evaluated. Recent studies in infected animals show that injection of much tuberculoprotein causes a disappearance of circulating antibodies to the tuberculopolysaccharide, a great extension in caseation, and hastening of death. Injection of tuberculopolysaccharide interferes with complement fixation and other immunological processes and also with the natural bacteriostatic activity of serum.

Answer.—It is a fairly common occurrence for a site previously injected with an antigen to flare up under certain conditions. For example, the injection of an antigen (such as ragweed pollen) in one area may cause a reaction in the other arm where the same antigen or a dissimilar one (such as grass pollen) had been previously injected. It has been noted that such a flare-up can occur when the patient inhales the antigen during the season, and it can also happen as a result of ingestion of an allergenic food or drug. Even exposure to cold (swimming) or to heat, or any other physical upset, such as gastrointestinal or emotional upset, may cause the flare-up. The mechanism of this phenomenon is not clear. A possible explanation is that the site which had previously reacted to an antigen had been conditioned to react to other stimuli so that the cells will respond by releasing histamine or other mediators. Desensitization with tuberculin is possible but would not be indicated in this case. If the inquirer has not already done so, he should do everything necessary to determine the allergic or other causative factors for the asthma.

ANSWER.—It is not unusual to see individuals who, for months or years after the original tuberculin reaction has subsided, have redness reappear at the site of the former reaction when the skin becomes cold. It has also been observed that, in an occasional person, administration of a tuberculin test in another location may result in temporary changes of the skin at the site of an old previous reaction. These phenomena have never been satisfactorily explained. It seems doubtful that there is any significant correlation between the wheal and the attacks of asthma. Most persons who have reported various phenomena which have occurred at the sites of old tuberculin reactions have had them in association with other conditions than asthma. There has been a large volume of work done on desensitization with tuberculin, in both animals and people. Hypersensitivity to tuberculoprotein causes this protein to become a violent poison to living tissues. Tuberculoprotein may be introduced into nonsensitized tissues in a large amount without harm. However, if tuberculoprotein comes in contact with sensitized tissues, it is so poisonous to the tissues that, if present in sufficient amount, it results in necrosis. Thus, tuberculoprotein liberated from bacilli in lesions of such organs as lungs and kidneys may result in enough necrotic tissue to leave cavities. Koch originally believed that introduction of tuberculin was valuable in treatment in that it resulted in reactions, including hyperemia, at the sites of tuberculous lesions. He thought that this stimulation was helpful in promoting the healing process. However, later observations revealed that it has the opposite effect in many cases, resulting in spread of the disease and, sometimes, in rapid progression of lesions. Koch used large doses of tuberculin, but some workers thought that smaller doses which would result in only slight reaction at the site of the disease would promote healing. It was observed that by repeating injection of the same amount of tuberculin several times there ceased to be evidence of macroscopic reaction. This was thought to be due to development of "tolerance" to tuberculoprotein. Therefore, the dosage was increased, and tolerance appeared with each successive larger dose of tuberculin administered until an amount was tolerated which would have resulted in serious consequences if it had been administered initially. There were those who so clung to the treatment value of tuberculin on the basis of the reaction that it produced, even though microscopic as they suspected, that its use was long continued in the treatment of this disease. Later, it was well established that it did not result in the imaginary microscopic reaction in lesions after administration of tuberculin but, rather, that it desensitized the tissues. This, therefore, was responsible for the so-called tolerance to tuberculin in the absence of both macroscopic and microscopic reactions in the lesions. The belief that hypersensitivity to tuberculoprotein is an asset in the prevention of clinical lesions or in their healing has been replaced by well-documented evidence that it is a liability in both instances. Tuberculin administrations have been employed for desensitization in asthma when it was thought that hypersensitivity to tuberculoprotein was responsible. However, this apparently is a rare cause for asthmatic attacks, and such treatment should be considered only when all other possibilities have been ruled out as far as possible. There is no harm in desensitizing the tissues of the human body with tuberculin, provided that the dosage is kept below the skin-reaction level at all times. If desensitization is achieved, even to such a low level that 10 mg. of tuberculin will not result in a reaction, it can be maintained only by continuous administrations of tuberculin. If this is discontinued, sensitivity of the tissues returns and remains as long as living tubercle bacilli are present in the body under circumstances which permit liberation of sufficient amount of tuberculoprotein to maintain it.

CORAL SNAKE BITES

TO THE EDITOR:—*I have just read in the Questions and Answers section of* THE JOURNAL *a discussion about poisonous snake bites. However, the very one I wanted to know about, that of the coral snake, was omitted. There has recently been found in this vicinity two coral snakes, the identity of which is certain. Please give information on the exact and specific treatment, particularly the antivenin dose, as well as any special supportive measures. There has been some conflicting opinions among some authorities in regard to ACTH and hydrocortisone sodium succinate. Is it, or isn't it, indicated?*

David Eanes, M.D., Temple, Texas.

ANSWER.—Little is known about the venom of the North American coral snakes (Micrurus). Probably no single physician in the United States has had extensive experience in treating their bites. There are no reports in the literature of "large" numbers of cases. Little is known about the frequency of coral snake bites; however, they are probably rare owing to the snakes' limited geographical distribution and their relatively unaggressive behavior. In Florida, a study of the incidence of snake bites showed that only 5 (2%) of 241 poisonous snake bites were inflicted by coral snakes (Parrish, *Am. J. Trop. Med.* 6:761, 1957). This consultant has personally seen and treated four persons with coral snake bites. These bites all consisted of scratches on the skin from the fangs—there was no deep impregnation of the venom, and no symptoms of venom poisoning developed. These incidents would be classed as "poisonous snake bites without envenomation." No specific treatment was deemed necessary in these cases. The coral snake has very short fangs and usually must "chew" its venom into a human being. Neill reviewed the literature of coral snake bites and reported an additional 21 bites with 4 deaths (*Herpetologica* 13:111, 1957). These cases were investigated by means of a questionnaire. Many of these questionnaires were answered by the family and not by a physician. However, coral snake venom is toxic, and human deaths resulting from coral snake bites have been recorded.

The venom of the coral snake is similar to that of the cobra and is primarily neurotoxic in action. Symptoms include local pain, motor paralysis, muscular twitching, inability to speak clearly, salivation, numbness, and respiratory difficulty. Death usually results from respiratory paralysis. Treatment consists of the usual tourniquet with incision and suction if the bite is seen early. There is a specific antivenin for coral snakes, antielapid antivenin, which is effective for the South American coral snakes (and presumably for the North American coral snakes also). It is manufactured by the Instituto Butantan, Sao Paulo, Brazil. From 10 to 50 cc. is the recommended dose. In general, antivenins for neurotoxic venoms are more effective than antivenins for hematoxic venoms. Note that antivenin (crotalidae) polyvalent, the only snake antivenin manufactured in the United States, is not effective against coral snakes. Other therapy is supportive in nature and is somewhat similar to that used for bulbar poliomyelitis. A tracheotomy, oxygen therapy, and a respirator may tide a patient over respiratory paralysis. Antibiotics and tetanus toxoid and/or antitoxin should be given to prevent infections. Morphine and other narcotics which depress the central nervous system are contraindicated. Central nervous system stimulants, such as nikethamide and caffeine may be tried. Shock should be combated by intravenous administration of blood, plasma, and electrolytes. Cortisone and ACTH do not prevent death in snake venom poisoning but may afford some symptomatic and supportive benefits.

ULCERATIVE COLITIS AND OSTEOPOROSIS

To THE EDITOR:—*A 38-year-old man was recently hospitalized because of an acute compression fracture of T-10. A history of intermittent diarrhea of more than 15 years was obtained. Stools were noted by him as brown, occasionally blood-streaked, and mushy. Roentgenograms revealed ulcerative colitis of the transverse and descending colon and sigmoid, as well as diffuse ileitis involving about 25 cm. of the terminal ileum. The ascending colon and cecum appeared uninvolved. Sigmoidoscopy revealed a granular mucosa in the upper sigmoid only, which on biopsy revealed accumulations of lymph and plasma cells in the mucosa and submucosa with no giant cells, and a diagnosis of nonspecific inflammation was made. Bone survey revealed generalized osteoporosis involving the right femur, tibia, humerus, and spine. There was diffuse demineralization and loss of traveculation, as well as the compression fracture in the thoracic spine. The lamina dura was present. Laboratory findings included the following data: 24-hour urine calcium level (milk-free diet), 164 mg.; serum alkaline phosphatase level, 5.7 Shinowara (S. J. R.) units; sodium level, 143 mEq. per liter; potassium level, 4.5 mEq. per liter; calcium level, 9.2 mg. %; phosphorus level, 3.5 mg. %; stool fat, negative; prothrombin time, 76%; histamine gastric analysis, total 74 degrees, free acid, 60 degrees; glucose tolerance curve, 67, 127, 168, 163, and 72 mg. %; serum carotene 126 I. U. per 100 cc.; thymol turbidity, 3.5 units; sulfobromophthalein, 4.5%; stool guaiac, 1+; serum protein-bound iodine level, 5.5 mcg. %; urea nitrogen level, 11 mg. %; protein albumin and globulin levels, 3.2 and 4.6 Gm.%; hemoglobin level, 14.8 Gm.%; and white blood cell count, 8,650 per cubic millimeter. Could osteoporosis occur secondary to ileitis in this case, with normal serum calcium, phosphorus, and alkaline phosphatase levels? Do abnormal findings on tolerance tests (carotene, glucose) revert to normal in quiescent intervals? Does the absence of gross fat in the stool rule out marked steatorrhea of a degree necessary to produce this picture, or would fat partitions and balance tests of nitrogen aid in the diagnosis? Is folic acid, vitamin B_{12}, or liver therapy useful if there is no anemia or achlorhydria? Is steroid therapy indicated to increase calcium absorption?*

Leonard Breslaw, M.D., Los Angeles.

ANSWER.—The record of this patient contains several unusual features. The segmental ulcerative colitis of the transverse colon with a normal ascending colon and then diffuse ileitis of such a long stretch of ileum is rare. The physical examination and the laboratory data indicate the patient's condition to be rather good. Osteoporosis secondary to an extensive ileitis is possible, but certainly one would expect changes in the calcium and phosphorus levels of the serum. Abnormal findings on tolerance tests may revert to normal when the intestinal condition is quiescent. The absence of gross fat in the stools indicates the absence of a steatorrhea of any marked degree. Further investigations for the cause of the so-called osteoporosis and fracture of the thoracic spine should be undertaken. The possibility of metastatic malignancy might be considered. Folic acid, vitamin B_{12}, or liver would hardly be indicated in a patient with such satisfactory laboratory data. The advisability of the use of steroids is questionable. The case is unusual and warrants further study.

WASHINGTON NEWS

FROM THE WASHINGTON OFFICE OF THE AMERICAN MEDICAL ASSOCIATION

Flemming Favors Long-Range Health Study . .
White House Conference on Aging . .
Nobel Prize Winners in Medicine . .
Plans for National Library of Medicine . .
Study on Private Efforts in Rehabilitation . .
Miscellany . .

FLEMMING PROPOSES LONG-RANGE STUDY OF HEALTH, WELFARE GOALS

Secretary Flemming is interested in getting a long-range study underway of the nation's health, welfare, and education goals and particularly to determine what is the "fair share" of the federal government. He told a press conference:

"I am tired of people pulling figures out of the air on what the federal government ought to do. There is no recognition of state, local, and private responsibilities. All have to share."

While still in the formative stage, the plan for a health survey contemplates a group of consultants along the lines of the Bayne-Jones committee which reported last summer to retiring HEW Secretary Folsom on needs and goals in two areas: medical research and medical school expansion.

Mr. Flemming promised "fullest consultation" with interested organizations in arriving at answers for such questions as (1) time span for achieving goals, (2) how much to spend each year, and (3) how much to be spent through grants in aid.

The HEW, he indicated, was most advanced in its planning for studies in the field of education. Health and welfare studies would follow. Mr. Flemming described the projects as a good example of the "leadership role of the government."

As a preliminary step to his studies, the Secretary is conducting a series of "listening" meetings with heads of national organizations in the health, welfare, and education fields. The first of these was on vocational rehabilitation. Among the proposals aired during the day-long session were these:

1. Creation of a new federal agency for training the severely handicapped for independent living when it becomes apparent they cannot return to employment.
2. Establishment by the federal government of a program of rehabilitating an estimated 500,000 to 750,000 who are jobless because of alcoholism.
3. A requirement that workmen's compensation boards in each state rehabilitate the disabled and not just pay them compensation.
4. The deaf to have access to rehabilitation centers; four-year college courses to be set up for prosthetists.

WHITE HOUSE AGING CONFERENCE HAILED BY HEW UNDERSECRETARY

The White House Conference on Aging set for January, 1961, will have "great significance in advancing" programs for older persons, including those in the medical field. This view was expressed by *Bertha A. Adkins, Undersecretary of the Department* of Health, Education, and Welfare, in an address before the Gerontological Society.

Mrs. Adkins said the conference authorized by the last Congress will not be wholly organized and controlled by the federal government but will be "a great national forum reflecting the knowledge, thinking, and proposals of the greatest possible number of our citizens."

The conference will be under the over-all direction of a national advisory committee composed of outstanding citizens and recognized leaders in gerontology and the fields of economics, education, health, housing, recreation, religion, and welfare. HEW is now collecting names of possible candidates for the council.

Mrs. Adkins noted that funds had been provided to help the states plan for state conference on aging in advance of the Washington conference. Many persons will have an opportunity at the state level to contribute to the state reports which can be brought to the White House meeting.

"It is our hope that these state conferences will be preceded, in turn, by hundreds of community meetings . . . involving individuals, groups, and organizations concerned with the vast array of problems and approaches to all aspects of this whole matter of aging. If this happens, we can have confidence that we are embarking on a new stage of development in creating services for our older citizens," Mrs. Adkins declared.

"If all of us work together—professional people, citizens, and those of us in public life—as individuals and through our organizations, we can inaugurate a real movement toward enriching the added years of life."

The importance of the White House conference was stressed in a separate address by Tol Terrell, past president of the American Hospital Association, to a Washington meeting of the Maryland, District of Columbia, Delaware Hospital Associa-

(Continued on next page)

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Lown, B., and Levine, S. A.:
Current Concepts in Digitalis Therapy, Boston,
Little, Brown & Company, 1954, p. 23, par. 2.

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tion. Mr. Terrell noted the work being done now in helping solve the health needs of the aged. He added that there should be no new approach to providing for the aged (such as the Forand proposal for free hospitalization through social security) until after the outcome of the White House Aging Conference.

NOBEL PRIZE WINNERS IN MEDICINE AND PHYSIOLOGY

The award of the 1958 Nobel Prize in medicine and physiology to three American scientists has prompted a comment from the Department of Health, Education, and Welfare. All three, according to Secretary Flemming, have been closely associated for many years with research supported by the National Institutes of Health. The secretary cited it as an "excellent example of what the federal government can do to help" scientists.

Dr. Joshua Lederberg of the University of Wisconsin has been receiving an NIH grant for 10 years. Dr. Lederberg is a member of the newly formed Genetics Study Section of NIH, having been a member of the Morphology Study Section from 1949 to 1953. His current grant is from the National Cancer Institute, for $13,800.

Dr. Edward Tatum of the Rockefeller Institute for Medical Research is a member of the Division of General Medical Sciences Genetics Training Committee and has received grant support from NIH since 1951. His current grant is $14,145, from the National Cancer Institute.

Dr. George Beadle, California Institute of Technology, was the first scientist to deliver a Dyer Lecture at NIH and is now receiving a National Heart Institute grant, working in experimental biology and genetics. His current project is expected to receive support until 1961; his current grant is $54,148.

HEW estimates that nearly half of the country's medical research is supported by NIH grant programs and that they involve some 7,000 grants this year. Awards are made upon recommendation of some 700 nonfederal advisers who review applications for grants as members of study sections and advisory councils.

PRELIMINARY PLANS FOR NATIONAL LIBRARY OF MEDICINE

Architects have submitted preliminary plans for the construction of the National Library of Medicine to the Public Buildings Service, which must give its approval before work proceeds. Final working drawings are expected to be ready in December, according to the Public Health Service.

The 7 million dollar stucture will be built on the grounds of the National Institutes of Health at Bethesda, Md. There will be 232,000 sq. ft. of space on five levels, three of which will be below ground level. The design is the work of R. B. O'Connor and W. H. Kilham Jr., of New York City. The last Congress voted funds to replace the 71-year-old building which houses the largest medical library in the world.

PHS officials are hopeful that ground will be broken next spring for the library. The building is expected to be completed in 1961, the 125th anniversary of the library's founding.